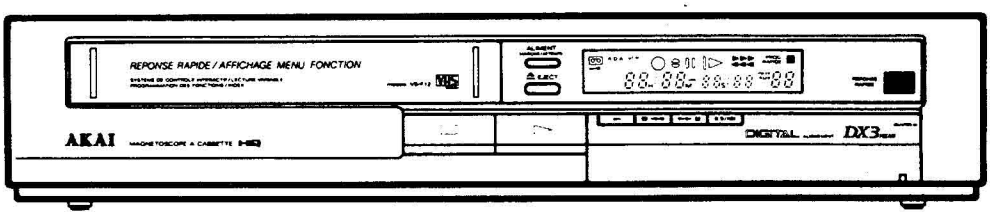
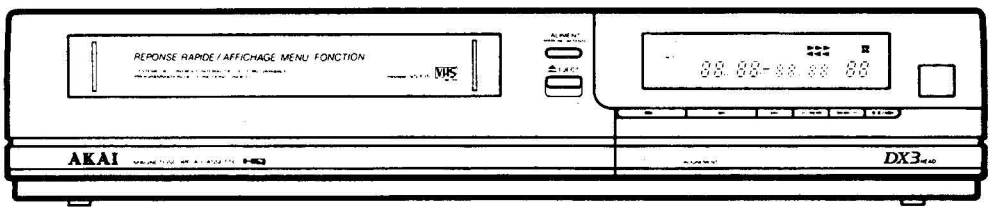
VS-F10S,F11S
VS-F12S/F12SK
VS-F15S

AKAI SERVICE MANUAL



Model VS-F12SK



Model VS-F15S

HQ HIGH QUALITY VHS SECAM

VIDEO CASSETTE RECORDER

MODEL VS-F10S

MODEL VS-F11S

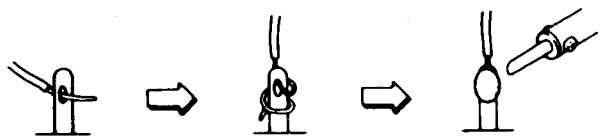
MODEL VS-F12S/F12SK

MODEL VS-F15S

★ SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ (*) symbol are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.

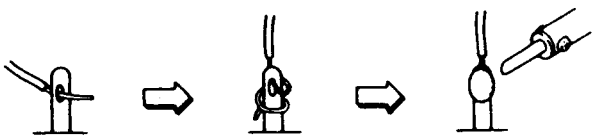


6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

★ CONSIGNES DE SECURITE

PRECAUTIONS A PRENDRE PENDANT L'ENTRETIEN

1. Les pièces marquées du symbole ⚠ (*) sont vitales à la sécurité. Ne les remplacer que par des pièces ayant les numéros spécifiés.
2. En plus des raisons de sécurité, certaines pièces et ensembles sont repérés pour des raisons de conformité à la règlemenation, comme celle s'appliquant aux émissions sur bande interdite.
   Ces pièces et ensembles ne doivent également être remplacés que par ceux spécifiés.
   Exemples: Convertisseurs RF, unités tuners, sélecteurs d'antenne, câbles RF, condensadeurs d'arrêt de bruit, filtres d'arrêt de bruit, etc.
3. Utiliser les câbles internes spécifiés, plus particulièrement:
   1) Câbles recouverts d'un tube en PVC
   2) Câbles à double isolement
   3) Conducteurs de haute tension
4. Utiliser les matériaux isolants spécifiés pour les pièces sous tension pouvant représenter une source de danger, plus particulièrement:
   1) Ruban isolant
   2) Tubes en PVC
   3) Entretoises (barrières isolantes)
   4) Plaques isolantes pour les transistors
   5) Vis en plastique pour la fixation des micro-contacts (plus particulièrement de la table de lecture)
5. Lors du remplacement d'organes côté primaire CA (transformateurs, cordons d'alimentation, condensateurs d'arrêt de bruit, etc.), enrouler solidement l'extrêmité des câbles autour des bornes avant de souder.



6. Faire attention que les câbles n'entrent pas en contact avec des pièces génératrices de chaleur (dissipateurs thermiques, résistances à film métal oxyde, résistances de fusible, etc.).
7. Vérifier que les câbles remplacés ne sont pas en contact avec des arêtes vives ou des parties efilées.
8. Vérifier également les zones autour des pièces réparées.
9. Faire attention à ne pas laisser de matières étrangères (vis, gouttes de soudure, etc.) à l'intérieur de l'appareil.

SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit. The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resister of 1500 ohms paralleled with a 0.15 µF capacitor, under the unit's normal working conditions. The leakage-current should be less than 0.5 mA rms AC. The resistance measurement should be done between accessible exposed metalparts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

CONTROLE DE SECURITE A EFFECTUER APRES REPARATION

Après avoir effectué une réparation, mesurer le courant de fuite ou la résistance afin de déterminer que les pièces exposées sont suffisamment isolées du circuit d'alimentation. La mesure du courant de fuite doit être effectuée, dans les conditions normales de fonctionnement de l'appareil, entre des pièces de métal accessibles (comme par exemple châssis, bornes de terre, prises de microphones, connecteurs d'entrée/sortie de signaux, etc.) et la terre en utilisant une résistance de 1500 ohms mise en parrallèle avec un condensateur de 0,15 µF. Le courant de fuite doit être inférieur à 0,5 mA eff. CA. La mesure de la résistance doit être effectuée entre des pièces de métal accessibles exposées et les fiches de la prise du cordon d'alimentation, l'interrupteur d'alimentation (si l'appareil en est pourvu) étant activé. La résistance ne doit pas être supérieure à 2,2 Mohms.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.
Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.

PARTICIPEZ A LA PROTECTION DE L'ENVIRONNEMENT

Les piles usées portant le sigle ISO de recyclage, les petits accumulateurs (piles rechargeables), les mini-piles (pastilles) et les piles démarreurs ne doivent pas être jettées avec les ordures ménagères.
Veuillez les porter à un entrepôt approprié. Toutes les autres piles courantes peuvent être jetées avec les ordures ménagères.

★ SPECIFICATIONS

Format		VHS Standard
Video recording system		Rotary, slant azimuth two-head helical scan system
Rotary Heads		
	F10S/F11S	2 video heads
	F12S/F12SK/F15S	3 video heads
RF input		
	EXCEPT F12SK	System L VHF: ch B - C, 1 - 6, UHF: ch 21 - 69 CABLE: ch B - Q
	F12SK	System D, K VHF: ch 1 - 3, 4 - 9, UHF: ch 21 - 69
RF output		
	EXCEPT F12SK	System L type modulation UHF: ch 30 - 39 adjustable (preset ch 36)
	F12SK	System K type modulation VHF: ch 4, 5 switchable (preset ch 5)
Recording (line input)		SECAM
Playback (line output)		SECAM
Video		
Line input level		0.5 - 2.0 Vp-p/75 ohms, unbalanced
Line output level		1.0 Vp-p/75 ohms, unbalanced
S/N ratio		More than 45 dB
Horizontal resolution		More than 220 lines
Audio		
LIne input level		-6 dBs/50K ohms, unbalanced
Line output level		-6 dBs/1K ohms, unbalanced
S/N ratio		More than 40 dB
Frequency response		70 - 10,000 Hz
Recording/playback time		240 min. with E-240 cassette
Tape speed		23.39 mm/SEC.
Quick finder		Approx. 5 or 15 times normal speed
FF, REW time		Approx. 5 min with E-180 cassette
Timer		
Program		8 programs/1 year and QUICK TIMER
Clock reference		Quartz crystal
Display		TV screen & FL (Tape counter, Timer etc.)
Power requirements		220V AC, 50 Hz
Power consumption		36 W
Operating temperature		5°C - 40°C
Dimensions		425 (W) × 82 (H) × 315 (D) mm
Weight		5.0 kg

Standard accessories	EXCEPT F15S	F15S
Antenna cable	1	1
Remote control unit	1	1
Batteries for remote control	2	3
TV controls sticker	1	1
Operator's manual	1	1

0 dBs=0.775V

* For improvement purposes, specificatios and design are subject to change without notice.

★ CARACTERISTIQUES

Format		VHS Standard
Système d'enregistrement vidéo		Système de balayage rotatif, à deux têtes hélicoïdales inclinées en azimut
Têtes rotatives		
	F10S/F11S	2 têtes vidéo
	F12S/F12SK/F15S	3 têtes vidéo
Entrée RF		
	SAUF F12SK	Système L VHF: Canaux B - C, 1 - 6, UHF: Canaux 21 - 69 Câble: CAnaux B - Q
	F12SK	Système D, K VHF: Canaux 1 - 3, 4 - 9, UHF: Canaux 21 - 69
Sortie RF		
	SAUF F12SK	Système L type à modulation UHF: Canaux 30 - 39 réglables (canal 36 préréglé)
	F12SK	Système K, type à modulation VHF: canaux 4, 5 commutables (canal 5 préréglé)
Enregistrement (Entrée de ligne)		SECAM
Lecture (Sortie de ligne)		SECAM
Vidéo		
Niveau entrée de ligne		0,5 - 2,00 Vp-p/75 ohms, asymétrique
Niveau sortie de ligne		1,0 Vp-p/75 ohms, asymétrique
Rapport S/B		Plus de 45 dB
Résolution horizontale		Plus de 220 lignes
Audio		
Niveau entrée de ligne		-6 dBs/50 kohms, asymétrique
Niveau sortie de ligne		-6 dBs/1 kohms, asymétrique
Rapport S/B		Plus de 40 dB
Réponse en fréquence		70 - 10.000 Hz
Temps d'enregistrement/lecture		240 min. avec cassette E-240
Vitesse de défilement		23.39 mm/sec.
Recherche rapide		Env. 5 ou 15 fois la vitesse normale
Temps de rembobinage/avance rapide		Env. 5 min avec cassette E-180
Minuterie		
Programme		8 programmes/1 annnée et enregistrement minuté immediat (QUICK TIMER)
Référence d'horloge		Cristal quartz
Affichage	Ecran	TV et FL (Compteur de bande, Minuterie, etc.)
Alimentation électrique		Secteur 220 V, 50 Hz
Consommation d'énergie		36 W
Température de fonctionnement		5°C - 40°C
Dimensions		425 (L) × 82 (H) × 315 (P) mm
Poids		5,0 kg

Accessoires standards	SAUF F15S	F15S
Câble d'antenne	1	1
Télécommande	1	1
Piles de télécommande	2	3
Autocollant de télécommande	1	1
Mode d'emploi	1	1

0 dBs=0.775V

* Les spécifications et le design peuvent être modifiés sans aucun avis pour y introduire des améliorations.

SYMBOLS OF MODEL NAME FOR PRIMARY DESTINATION

Symbol indicates the destination of the units as listed below.

Symbol	Power Supply Classification	Principal Destination	Television System	
			Color	Broadcast
EA	S	Australia	PAL	B, G
ED	E	China	PAL	D
EDG	E	East Europe	PAL	D, K
EDI	E	China, Hong Kong	PAL	D, K, I
EG	E	Spain, Northern Europe, Other	PAL	B, G
	Y7	Saudi Arabia		
EK	B	U.K.	PAL	I
	Y1	Hong Kong		
EM	E	Middle East	PAL	B, G
	Y7	Saudi Arabia		
EO	E	Holland, Switzerland, Northern Europe	PAL	B, G
	V	Italy		
EOH	E	Holland, Belgium	PAL	B, G
	V	Italy		
EOG	V	W.Germany	PAL	B, G
ES	E	South Africa, Ireland, Hong Kong	PAL	I
EV	E	South-East Asia	PAL	B, G
	U	Middle East, South-East Asia		
	Y1	New Zealand		
	Y7	Saudi Arabia		
EZ	S	New Zealand	PAL	B, G
EGN	E	Middle East	PAL, NTSC	B, G
	Y7	Saudi Arabia		
S	E	France	SECAM	L
SK	E	Latin America, Oceania, SECAM-OIRT	SECAM	K, KI
SEG	E	France, Switzerland	SECAM, PAL	L, B, G
U	A	U.S.A	NTSC	M
	C	Canada		
UM	U	Latin America	NTSC	M
J	J	Japan	NTSC	M

Quick start function

This VCR contains the quick start function.

When a video tape is inserted into this VCR, the QUICK START indicator will automatically light on the front panel. This indicates that the VCR is in the quick start mode and that any function button pressed will operate immediately. If a function button is not pressed within 5 minutes, the indicator will disappear and the VCR will be released from the quick start mode. If the play or record button is pressed after the indicator has disappeared, there will be a short time before the VCR responds.

Codes de destination des noms de modele

Les codes indiquent le pays de destination de l'appareil de la manière suivante:

Code	Classe Alimentation	Destination principale	Système TV	
			Couleur	Diffusion
EA	S	Australie	PAL	B, G
ED	E	Chine	PAL	D
EDG	E	Europe de l'Est	PAL	D, K
EDI	E	Chine, Hong Kong	PAL	D, K, I
EG	E	Espagne, Europe du Nord, autres	PAL	B, G
	Y7	Arabie Saoudite		
EK	B	Royaume Uni	PAL	I
	Y1	Hong Kong		
EM	E	Moyen orient	PAL	B, G
	Y7	Arabie Saoudite		
EO	E	Hollande, Suisse, Europe du nord	PAL	B, G
	V	Italie		
EOH	E	Hollande, Belgique	PAL	B, G
	V	Italie		
EOG	V	Allemagne de l'ouest	PAL	B, G
ES	E	Afrique du Sud, Irlande, Hong Kong	PAL	I
EV	E	Asie du Sud Est	PAL	B, G
	U	Moyen Orient, Asie du Sud Est		
	Y1	Nouvelle Zélande		
	Y7	Arabie Saoudite		
EZ	S	Nouvelle Zélande	PAL	B, G
EGN	E	Moyen Orient	PAL, NTSC	B, G
	Y7	Arabie Saoudite		
S	E	France	SECAM	L
SK	E	Amérique latine, Océanie, SECAM-OIRT	SECAM	K, KI
SEG	E	France, Suisse	SECAM, PAL	L, B, G
U	A	U.S.A	NTSC	M
	C	Canada		
UM	U	Amérique latine	NTSC	M
J	J	Japon	NTSC	M

Fonction de départ rapide (QUICK START)

Ce magnétoscope est pourvu de la fonction de départ rapide.

Lorsqu'une bamde est introduite dans le magnétoscope, l'indicateur QUICK START s'allume automatiquement sur la face avant. Ceci indique que le magnéroscope est en mode de départ rapide, ce qui signifie que n'importe quelle touche de fonction sollicitée sera immédiatement opérationnelle. Si aucune touche de fonction est sollicitée dans les 5 minutes, l'indicateur s'éteint et le magnétoscope sort du mode de départ rapide. Si la touche de reproduction ou d'enregistrement est sollicitée après que l'indicateur se soit éteint, le magnétoscope répondra avec un court retard.

Automatic functions

This VCR contains the following auto functions.

1. Auto power on
   The VCR power is automatically turned on when the tape is inserted.
2. Auto play
   If the video tape's recording defeat tab has been removed, playback will begin automatically when the tape is inserted into the VCR.
3. Auto tape reject
   If a video tape with its recording defeat tab removed is loaded, the VCR will automatically eject it when the REC or TIMER button is pressed.
4. Power off eject
   Even when the VCR's power is off, pressing the EJECT button will turn the power on and eject the tape. Once ejected the power will be turned off automatically.
5. Auto counter display
   When the display mode is on, the tape counter will be displayed on the TV screen automatically during fast forward or rewind.
6. Auto rewind
   The video tape is automatically rewound when the end of the tape is reached during the play, recording or quick finder forward mode. (Auto rewind will not function during the next mode when it has been set after the timer recording, fast forward or recording mode.)
7. Auto dimmer display
   Between the hours of 23:00 and 6:00, if the VCR is not in use, the FL display is automatically dimmed to a lower light level.

Safety lock system (Remote control only)

This VCR's PLAY button can be locked to prevent access by small children.

This feature can be operated by the remote control only.

To lock: With the VCR POWER ON, press and hold the remote control's stop button for approx. 8 seconds. The safety lock indicator will appear on the FL display to indicate that the VCR is locked.

To unlock: Press and hold the remote control's play button for approx. 8 seconds. The safety lock indicator will flash and disappear from the display.

Fonctions automatiques

Le magnétoscope est pourvu des fonctions automatiques suivantes:

1. Mise sous tension automatique
   Le magnétoscope est automatiquement mis sous tension à l'insertion d'une cassette.
2. Lecture automatique
   Si la languette de protection de la cassette a été brisée, la lecture commence automatiquement lorsque la cassette est introduite dans le magnétoscope.
3. Ejection automatique de la cassette
   Si une cassette dont la languette de protection a été brisée est introduite dans le magnétoscope, elle sera éjectée automatiquement lorsque la touche REC ou TIMER est sollicitée.
4. Ejection hors tension
   Lorsque le magnétoscope est hors tension, le fait d'appuyer sur la touche EJECT le remet sous tension et éjecte la cassette. Le magnétoscope se remet automatiquement hors tension lorsque la cassette est éjectée.
5. Affichage de compteur automatique
   Lorsque le mode addichage est activé, le compteur de bande sera automatiquement affiché sur l'écran TV pendant le rembobinage ou l'avance rapide de la bande.
6. Rembobinage automatique
   Lorsque la fin de la bande vidéo est atteinte pendant la lecture, l'enregistrement ou la recherche rapide vers l'avant, la bande est automatiquement rembobinée. (La fonction de rembobinage automatique ne fonctionne pas pendant le mode suivant lorsqu'il a été activé après le mode d'enregistrement différé, d'avance rapide ou d'enregistrement normal.)
7. Mise en veilleuse automatique de l'affichage
   Si le magnétoscope n'est pas utilisé, le niveau d'éclairage de l'affichage sera automatiquement baissé entre 23:00 et 6:00.

Système de verrouillage de sécurité (télécommande uniquement)

La touche PLAY de ce magnétoscope peut être verrouillée pour empêcher que de jeunes enfants puissent l'utiliser. Cette fonction n'est accessible que de la télécommande.

Pour verrouiller: Le magnétoscope étant sous tension, appuyer sur la touche d'arrêt de la télécommande et la maintenir enfoncée pendant environ 8 secondes. Le témoin de verrouillage s'allume sur l'affichage pour indiquer que la fonction est activée.

Pour déverrouiller: Maintenir enfoncée la touche de lecture de la télécommande pendant environ 8 secondes. Le témoin de verrouillage clignote puis s'éteint complètement.

Multi-language display

The language of your choice can be selected for the on-screen display. You can choose any one of the following languages: English, German, Spanish, French, Italian, Dutch. If a language is not selected, the VCR will select English automatically.

1) Press the MENU button on the remote control unit. The MENU list will be displayed on the TV screen.
2) Select the LANGUAGE mode by setting the arrow indicator with the ∨ button. Then press the OK button.
3) The LANGUAGE list will be displayed on the TV screen. Then set the arrow to the desired language with ∨ button.
4) Press the OK button again. The language list screen will disappear after a few seconds and selected language has been set.

Multi speed playback (Remote control only)

The MULTI SPEED ≫, ≪ buttons make playback speed increase or decrease possible with the remote control.

The tape speed can be increased up to 15 times the normal playback speed in the forward or reverse directions.

In the forward direction, the speed can also be decreased to 1/12 of the normal playback speed (2 video heads type) and 1/4, 1/8, 1/12, 1/16, or 1/20th of the normal playback speed (3 or 4 video heads type).

Press the remote control's MULTI SPEED PLAY ≫ or ≪ button repeatedly during playback until you reach the desired speed.

During this mode, no sound will be heard.

Playback picture sharpness adjustment (Remote control only)

Playback picture sharpness adjustment is possible with the remote control.

Press the MENU button and select the CONTROL mode by pressing the OK button during playback.

The CONTROL mode will be displayed on the TV screen. Then choose the PICTURE mode with the ∧ button.

Press the > button to sharpen the picture or press the < button to soften the picture.

Affichage multilingue

Vous pouvez sélectionner la langue de votre choix pour l'affichage sur écran. Vous pouvez choisir une des langues suivantes: anglais, allemand, espagnol, français, italien ou hollandais. Si vous ne sélectionnez pas spécifiquement une langue, le magnétoscope sélectionnera automatiquement l'anglais.

1) Appuyez sur la touche MENU de la télécommande. La liste des MENUs apparaîtra sur l'écran de TV.
2) Sélectionnez le mode "LANGUAGE" en déplaçant la flèche à l'aide de la touche ∨ et appuyez ensuite sur la touche OK.
3) La liste des langues apparaît sur l'écran de TV. Amenez alors la flèche sur la langue voulue à l'aide de la touche ∨.
4) Appuyez à nouveau sur la touche OK. La liste des langues disparaît au bout de quelques secondes et le magnétoscope est réglé pour la langue sélectionnée.

Lecture à vitesses multiples (Télécommande uniquement)

Les touches MULTI SPEED ≫, ≪ de la télécommande permettent d'augmenter ou de diminuer la vitesse de défilement de la bande.

La vitesse de défilement peut être augmentée jusqu'à 15 fois la vitesse normale dans le sens avant ou dans le sens inverse de défilement.

Dans le sens avant, la vitesse peut également être réduite de 1/12ème (modèles à 2 têtes vidéo) et de 1/4, 1/8, 1/12, 1/16 ou 1/20ème (modèles à 3 ou 4 têtes vidéo) de la vitesse de défilement normale.

Appuyez plusieurs fois de suite sur les touches MULTI SPEED ≫, ≪ de la télécommande pendant la lecture jusqu'à ce que vous obteniez la vitesse de défilement souhaitée.

Dans ce mode de fonctionnement le son est assourdi.

Réglage de la netteté des images de lecture (Télécommande uniquement)

Il est possible à l'aide de la télécommande de régler la netteté des images de lecture.

Appuyez sur la touche MENU et sélectionnez le mode "CONTROL" en appuyant sur la touche OK pendant la lecture.

Le menu "CONTROL" apparaît sur l'écran de TV. Choisissez le mode "PICTURE" à l'aide de la touche ∧.

Appuyez sur la touche > pour rendre l'image plus nette ou sur la touche < pour l'adoucir Appuyez à nouveau sur la touche MENU pour désactiver le mode "CONTROL".

INTRO SCAN system (Remote control only)

This VCR is capable of quickly fast forwarding (or rewinding) to the beginning of each recorded segment on a tape, briefly playing back that segment, and then fast forwarding (or rewinding) to the next segment.

This system works in combination with the control signal which is recorded at the beginning of each recorded segment.

Press the INTRO SCAN button on the remote control during the "play", "stop", "fast forward" or "rewind" mode. The VCR will immediately fast forward (or rewind) the tape to the beginning of the program and play back about the first 8 seconds. The VCR will then again fast forward (or rewind) the tape to the beginning of the next recorded segment and again play back the first 8 seconds of the program.

This operation continues until the end of the tape (or the beginning of the tape) or another mode (such as PLAY or STOP)is chosen. During the INTRO SCAN mode, the index number will be displayed on the TV screen and flash on the FL display. This number will advance each time an index code is found. The INDX indicator will light on the FL display during the intro scan mode.

While intro scan is searching for the beginning of the program, the fast forward (or rewind) indicator lights and the play indicator flashes. During the 8 seconds of playback, the play indicator lights and the fast forward (or the rewind) indicator flashes.

INDEX SEARCH System (Remote control only)

Use the index search mode to jump directly to the beginning of any recorded segment, within 99 segments of your starting point, in either the forward or reverse direction. Using the index code (automatically added when tapes are recorded on this VCR) as a guide, The VCR forwards or rewinds the video tape to the segment you have chosen and begins playback automatically. Because the index search feature uses the index code that is added to the tape when programmes are originally recorded, this feature will only operate with tapes that include this index code.

Press the INDEX SEARCH forward or reverse button the number of index codes you wish to skip on the remote control.

The tape will be fast forwarded or quickly rewound to the desired segment and playback will begin automatically.

During the index search mode the index number will be displayed on the TV screen and flash on the FL display. This number will decrease each time an index code is found.

Fonction de recherche de début (INTRO SCAN) (télécommande uniquement)

Ce magnétoscope permet de faire avancer rapidement la bande (ou de la rembobiner) jusqu'au début de chaque section enregistrée sur la bande. Cette fonction est rendue possible grâce à un signal de comtrôle enregistré au début de chaque section.

Appuyer sur la touche de recherche de début (INTRO SCAN) de la télécommande en mode de lecture, d'arrêt, d'avance rapide ou de rembobinage. La bande avance (ou se rembobine) automatiquement jusqu'au début du programme et le magnétoscope se met en mode de lecture pendant environ 8 secondes. La bande ensuite avance à nouveau (ou se rembobine) jusqu'au début du segment d'enregistrement suivant et se met à nouveau en mode de lecture pendant environ 8 secondes.

Cette opération continue jusqu'à la fin (ou début) de la bande ou jusqu'à ce qu'un autre mode (lecture ou arrêt par exemple) soit activé. Pendant le mode INTRO SCAN, les numéros d'index sont affichés sur l'écran TV et clignotent sur l'affichage. Le numéro d'index change chaque fois qu'un nouvel index est trouvé. L'indicateur INDEX reste allumé sur l'affichage en mode INTRO SCAN. Pendant la recherche du début d'un programme, le témoin d'avance rapide (ou de rembobinage) s'allume et la témoin de lecture clignote. Pendant les 8 secondes de lecture, le témoin de lecture reste allumé et le témoin d'avance rapide (ou de rembobinage) clignote.

Fonction de recherche d'index (INDEX SEARCH) (télécommande uniquement)

Le mode de recherche d'index permet d'aller directement au début de n'importe quel segment enregistré, dans une plage de 99 segments à partir du point de départ dans le sens avant ou inverse. En utilisant les codes d'index (automatiquement ajouté lorsqu'on enregistre à l'aide de ce magnétoscope) comme guide, le magnétoscope fait défiler ou rembobine la bande jusqu'au segment sélectionné puis commence la lecture immédiatement. Du fait que cette fonction utilise des codes d'index ajoutés aux programmes lors de leur enregistrement, elle n'opère qu'avec des bandes contenant ces codes.

Appuyer sur la touche de recherche d'index (INDEX SEARCH) avant ou inverse autant de fois que le nombre d'index devant être sautés.

La bande avance ou se rembobine rapidement jusqu'au segment voulu et la lecture commence automatiquement.

Pendant la recherche d'index, les numéros d'index sont affichés sur l'écran TV et clignotent sur l'affichage. Le numéro d'index diminue de un chaque fois qu'un nouvel index est trouvé.

TEST MODE

To set the VCR to the TEST MODE, press and hold both the "POWER" and "EJECT" buttons on the front panel, then plug in the AC power cord. The TEST MODE can also be set by pressing the SYSTEM RESET button while pressing both the "POWER" and "EJECT" buttons.

When the TEST MODE has been engaged, the QUICK START indicator turns on even when the POWER is turned OFF.

The TEST MODE can be cancelled by disconnecting the AC power cord or simply by pressing the SYSTEM RESET button.

1) TRACKING POSITION DISPLAY

   In the SP play mode, pressing the manual TRACKING buttons during playback or when the auto tracking system is operating displays tracking position data. Data is displayed in 64 steps (in hexadecimal numbers from "00" to "3F") in the channel number indicator segment on the FL display.

   Pressing the PICTURE SHARPNESS + button sets tracking to the maximum "3F" tracking position directly during playback and pressing the - button sets it to the minimum "00" position.

   Pressing the PLAY button during playback sets tracking to the center position automatically.

   Pressing the MEMO button will change the FL display's tracking indication to the center of the tracking range. (This tracking data will be kept in EP-ROM IC even when the TEST MODE has been reset. Therefore, do not forget to return to the original center position "1F". Press the manual TRACKING buttons to set the indication to "1F", then press the MEMO button.)

2) FL DISPLAY CONFIRMATION

   By pressing the QUICK TIMER "M" button on the front panel, all indicator segments in the FL display will light up.

3) TIMER FUNCTION CONFIRMATION

   During the TEST MODE, the clock's minute display will advance by one every second to facilitate quick timer function confirmation.

4) SUSPENTION OF THE TAPE PROTECTION SYSTEM

   When the VCR is not in the TEST MODE, the REC PAUSE mode will be released after 30 minutes in order to protect the tape. The "STILL" mode will also be released after 5 minutes. During the TEST MODE however, the tape protection system will not operate.

5) AUTO PRESETTING OF THE TV STATIONS

   Once you have pressed the "PRESET" and "AUTO SCAN" buttons during the TEST MODE, TV stations will be memorized automatically when the system finds TV stations.

MODE ESSAI

Pour mettre le magnétoscope en mode MODE ESSAI, appuyer simultanément sur les touches d'alimentation (POWER) et d'éjection (EJECT) de la face avant et brancher ensuite le cordon d'alimentation. Le MODE ESSAI peut également être activé en appuyant sur la touche de remise à l'état initial du sytème (SYSTEM PRESET) tout en maintenant enfoncées les touches POWER et EJECT.

Lorsque le MODE ESSAI a été activé, l'indicateur de départ rapide (QUICK START) s'allume même si le magnétoscope n'est pas sous tension.

Le MODE ESSAI peut être désactivé en débranchant le cordon d'alimentation ou en appuyant simplement sur la touche SYSTEM RESET.

1) AFFICHAGE DE LA POSITION D'ALIGNEMENT

   En mode de lecture SP, le fait d'appuyer sur les touches d'alignement manuel (TRACKING) pendant la lecture, ou lorsque le système d'alignement automatique est en fonction, entraîne l'affichage des données de position d'alignement. Ces données sont affichée en 64 étapes (codes hexadécimaux allant de "00" à "3F") à la place du numéro de canal sur l'affichage.

   Le fait d'appuyer sur la touche de netteté d'image (SHARPNESS) + règle la position d'alignement directement au maximum "3F" pendant la lecture, alors que le fait d'appuyer sur la touche - la règle au minimum "00".

   Le fait d'appuyer sur la touche de lecture (PLAY) pendant la lecture règle la position d'alignement automatiquement au centre.

   Le fait d'appuyer sur la touche MEMO fait passer l'affichage de l'indication d'alignement au centre de la plage d'alignement. (Les données d'alignement seront conservées dans la mémoire EP-ROM même après désactivation du MODE ESSAI. Ne pas oublier de revenir à la position centrale d'origine "1F". Appuyer sur les touches d'alignement manuel (TRACKING) pour que l'affichage indique "1F" et appuyer ensuite sur la touche MEMO.)

2) CONTROLE DE L'AFFICHAGE

   Appuyer sur la touche d'enregistrement minuté immédiat (QUICK TIMER "M") de la face avant pour que tous les indicateurs de l'affichage s'allument.

3) CONTROLE DU FONCTIONNEMENT DE LA MINUTERIE

   En MODE ESSAI, l'affichage des minutes de l'horloge avance d'une unité à chaque seconde pour faciliter le contrôle de la fonction d'enregistrement minuté immédiat.

4) NEUTRALISATION DU SYSTEME DE PROTECTION DE LA BANDE

   Lorsque le magnétoscope n'est pas en MODE ESSAI, le mode de pause à l'enregistrement sera désactivé au bout de 30 minutes pour protéger la bande. Le mode d'arrêt sur image sera aussi désactivé au bout de 5 minutes. En MODE ESSAI, cependant, le système de protection de la bande est inopérant.

5) PREREGLAGE AUTOMATIQUE DES CHAINES DE TELEVISION

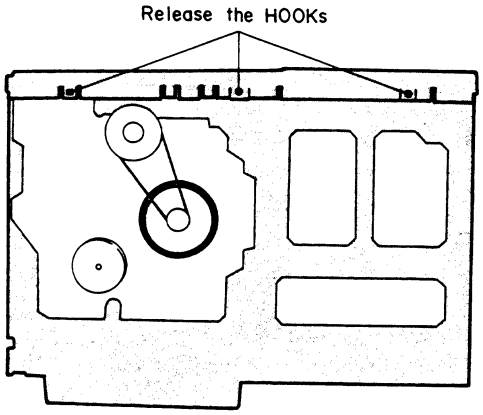
   Une fois que la touche de préréglage (PRESET) et la touche de balayage automatique (AUTO SCAN) ont été sollicitées en MODE ESSAI, les chaînes de TV seront mémorisées automatiquement chaque fois que le système trouve une chaîne.

I. DISASSEMBLY/DEMONTAGE

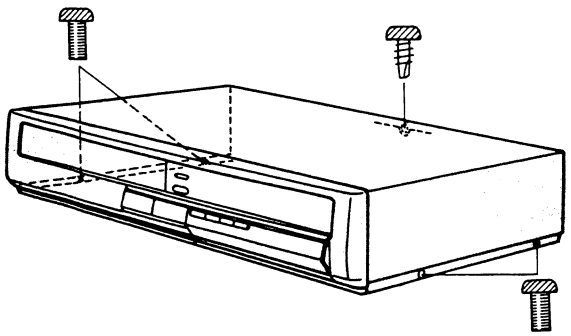
In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in reverse order.
When re-attaching the FRONT PANEL, hold the cassette loading slot door in the upright (open) position.

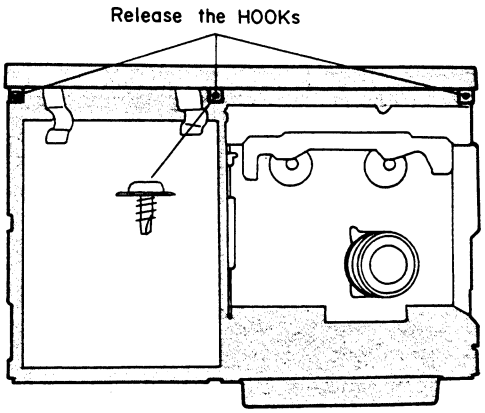
En cas de problèmes ou autres nécessitant le démontage, procerder dans l'ordre indiqué sur l'illustration. Remonter en procédant dans l'ordre inverse.
Lors de la repose du panneau avant, maintenir le volet de la fente d'introduction de la cassette en position haute (ouverte).

3. Removal of FRONT PANEL
3. Dépose du panneau avant (FRONT PANEL)

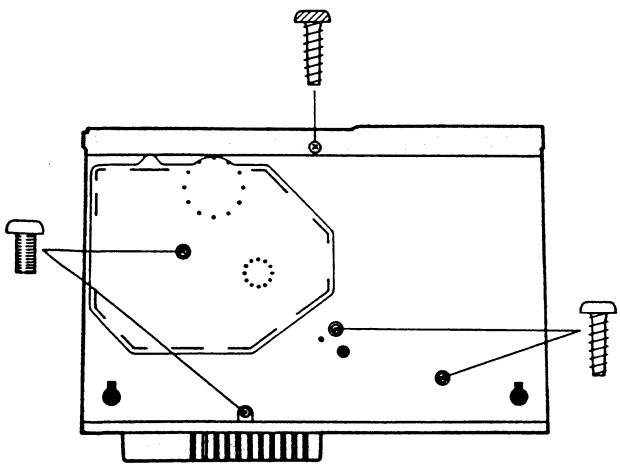


1. Removal of UPPER COVER
1. Dépose du panneau supérieur (UPPER COVER)

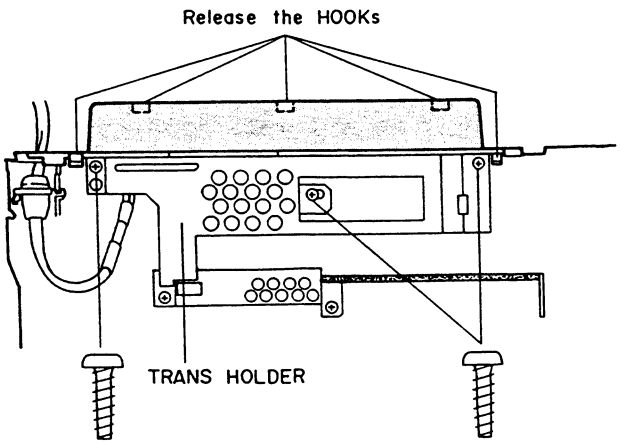




2. Removal of BOTTOM COVER
2. Dépose du panneau inférieur (LOWER COVER)



4. Removal of TRANS COVER
4. Dépose du panneau de (TRANS COVER)



II. PRINCIPAL PARTS LOCATION

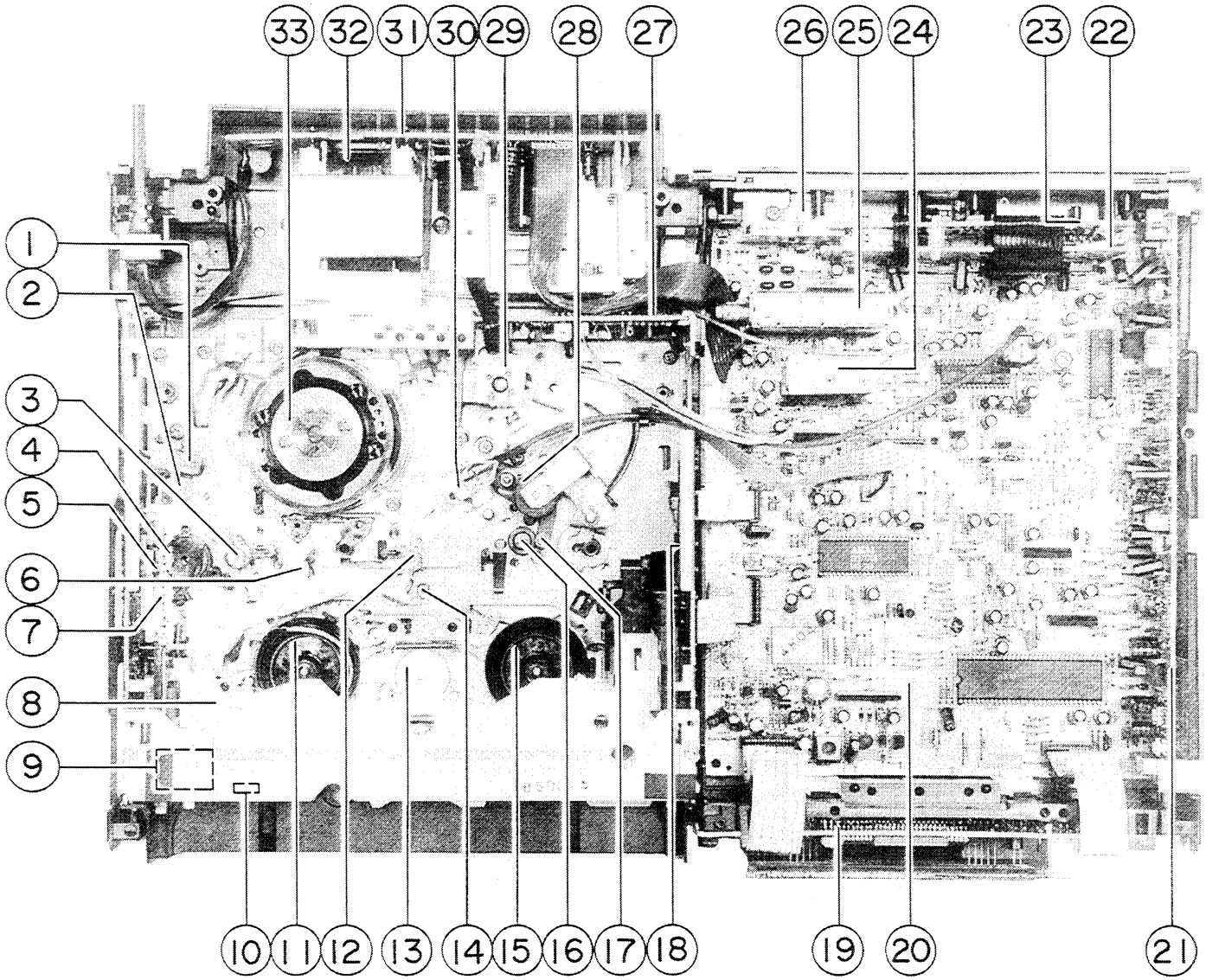


Fig. 2-1 Top view

1. FULL TRACK ERASE HEAD
2. SUPPLY TAPE GUIDE
3. SUPPLY LOADING LEADER
4. FRONT LOADING GEAR
5. SENSOR (S) PCB (END SENSOR)
6. TENSION ARM
7. FRONT LOADING SLIDER
8. CASSETTE LOAD BLK
9. LOADING MOTOR
10. REC SAFETY SWITCH
11. SUPPLY REEL TABLE
12. TAKE UP LOADING LEADER
13. IDLER PART
14. SENSOR LED
15. TAKE UP REEL TABLE
16. CAPSTAN MOTOR
17. REVIEW ARM
18. SENSOR (T) (START SENSOR)
19. OPERATION (A) PCB (EXCEPT VS-F15S)
    OPERATION (B) PCB (VS-F15S only)
20. MAIN PCB
21. VIDEO PCB
22. CANAL PLUS (A) PCB
23. CANAL PLUS (B) PCB
24. VIF UNIT
25. TUNER UNIT
26. RF CONVERTOR UNIT
27. PRE AMP (1) PCB (VS-F10S/F11S ONLY)
    PRE AMP (2) PCB (EXCEPT VS-F10S/F11S)
28. PINCH ROLLER
29. DIODE PCB (VS-F12SK ONLY)
30. AUDIO/CONTROL/S.ERASE HEAD
31. POWER SUPPLY PCB
32. POWER TRANSFORMER
33. VIDEO HEAD DRUM BLOCK

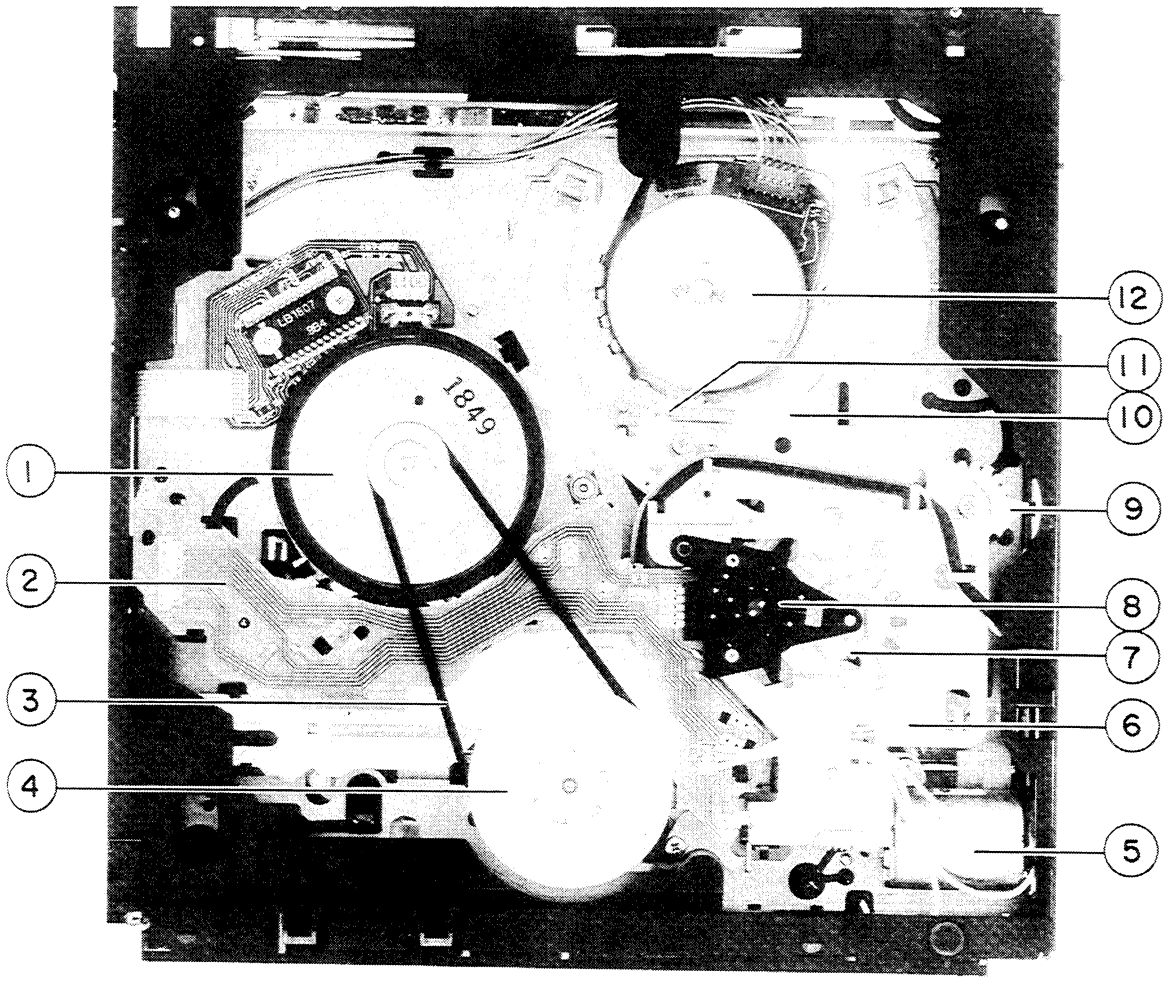


Fig. 2-2 Bottom view

1. CAPSTAN MOTOR BLOCK
2. SENSOR PCB
3. CAPSTAN BELT
4. CLUTCH DISK PART
5. LOADING MOTOR
6. LOADING DRIVE BLOCK
7. CAM SLIDER GEAR
8. MODE SELECT SWITCH
9. FRONT LOADING GEAR
10. TOGGLE (S) GEAR BLOCK
11. TOGGLE (T) GEAR BLOCK
12. DRUM MOTOR BLOCK

III. MAIN COMPONENTS REPLACEMENT

3-1. REMOVAL OF THE EJECTOR BLOCK

* Set the loading mechanism to the "EJECT" position by pressing the EJECT button. Then disconnect the AC power plug from the AC socket before proceeding.

3-1-1. Removal of the CASSETTE LOAD BLK

1) Remove the two Ⓐ screws on the UPPER PLATE as shown in Fig. 3-1 then remove the UPPER PLATE.
2) Lift up the FRONT GUIDE while pushing the CASSETTE LOAD BLK backward, then remove the FRONT GUIDE.
3) Lift up the front side of the CASSETTE LOAD BLK gently then remove it. To avoid damaging the pins of the CASSETTE LOAD BLK and the groove of the MECHA.FRAME, do not add excessive force to the CASSETTE LOAD BLK when removing it.

III. REMPLACEMENT DES ORGANES PRINCIPAUX

3-1. DEPOSE DU BLOC EJECTEUR

* Mettre le mécanisme de chargement en position éjection en appuyant sur la touche EJECT. Débrancher ensuite le cordon d'alimentation avant d'aller plus loin.

3-1-1. Dépose du bloc de chargement de cassette (CASSETTE LOAD BLK)

1) Déposer les deux vis Ⓐ sur la plaque supérieure (UPPER PLATE), comme illustré à la fig. 3-1, puis déposer la plaque supérieure (UPPER PLATE).
2) Soulever le guide avant (FRONT GUIDE) tout en poussant le bloc de chargement de cassette (CASSETTE LOAD BLK) vers l'arrière et déposer ensuite le guide avant (FRONT GUIDE).
3) Soulever avec précaution l'avant du bloc de chargement de cassette (CASSETTE LOAD BLK) puis déposer celui-ci. Pour ne pas endommager les axes du bloc de chargement (CASSETTE LOAD BLK) et les rainures du châssis du mécanisme (MECHA. FRAME), ne pas déposer le bloc de chargement (CASSETTE LOAD BLK) avec une force excessive.

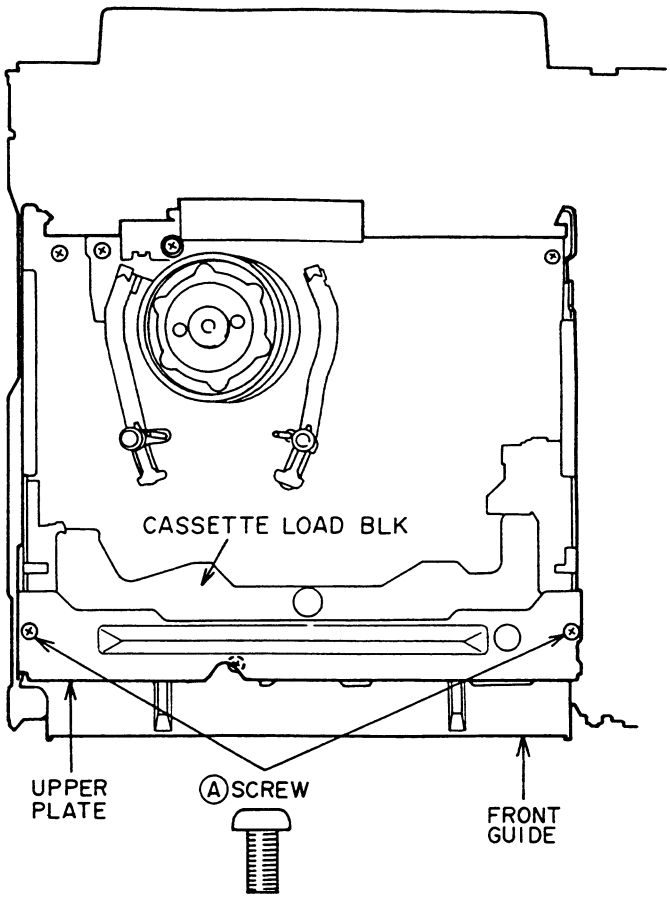


Fig. 3-1

3-1-2. Removal of the LOADING ARM BLK

1) Release the stopper on the right side end of the LOADING ARM BLK's shaft (Refer Fig. 3-2) by pressing the stopper tab with a flat head (—) screwdriver. Then remove the shaft's right end from the bracket.

3-1-2. Dépose du bloc de bras de chargement (LOADING ARM BLK)

1) Libérer la pièce d'arrêt située à l'extrèmité droite de l'arbre du bloc de bras de chargement (LOADING ARM BLK) (voir la Fig. 3-2) en appuyant sur sa languette à l'aide d'un tournevis plat. Sortir ensuite l'extrémité droite de l'arbre de la ferrure.

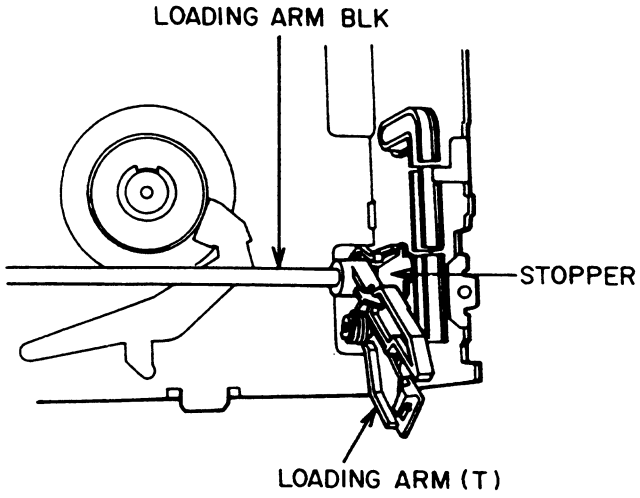


Fig. 3-2

2) Hold the LOADING ARM (T) and turn it 30 degrees clockwise, then pull out the shaft's left end from the bracket. To avoid damaging the JOINT GEAR and EJECT GEAR, take special care when removing. (Refer Fig. 3-3)

2) Tenir le bras de chargement (LOADING ARM (T)) et le faire touner de 30 dans le sens des aiguille d'une montre, puis sortir l'extrémité gauche de l'arbre de la ferrure. Prendre toutes les précautions requises lors de la dépose pour ne pas endommager le pignon commun (JOINT GEAR) et le pignon d'éjection (EJECT GEAR). (Voir Fig. 3-3)

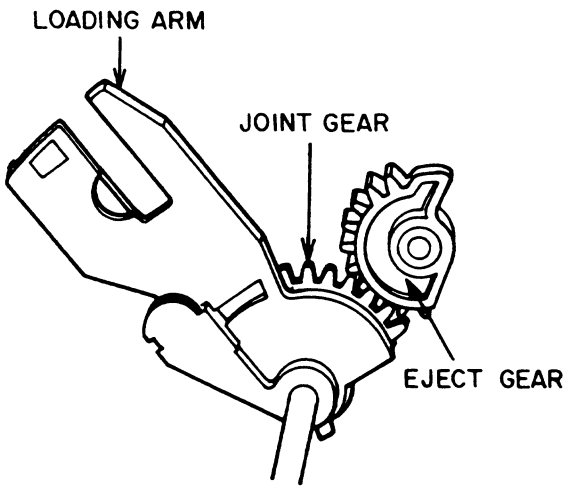


Fig. 3-3

3-2. REMOVAL OF THE SENSOR PC BOARD

* Before proceeding with removal of the SENSOR PCB the loading mechanism must be set to the "unloaded" position (the position where the CAM SLIDER GEAR's groove mark is visible through the hole of the MODE SELECT SW.) as shown in Fig. 3-4.

3-2. DEPOSE DE LA PLAQUETTE CI CAPTEUR (SENSOR PCB)

* Avant de procéder à la dépose de la PCI capteur (SENSOR PCB), il est nécessaire de mettre le mécanisme de chargement à la position "déchargé" (la position où l'encoche repère du pignon coulissant de came (CAM SLIDER GEAR) est visible à traver le trou du sélecteur de mode (MODE SELECT SW).) comme illustré à la Fig. 3-4.

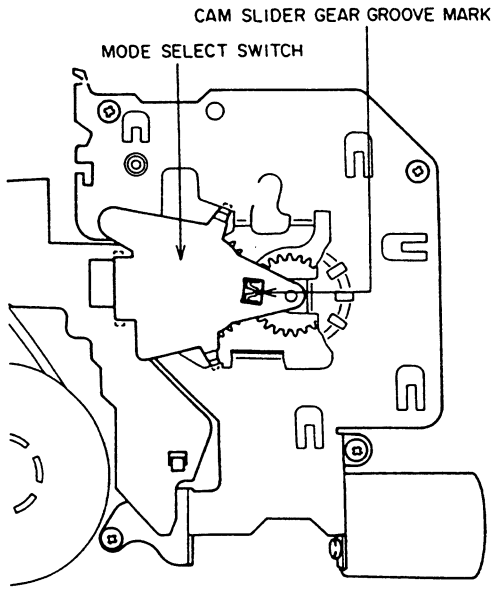


Fig. 3-4

To set the loading mechanism to the "unloaded" position, proceed with one of the following 1) or 2) procedures.

1) Insert a video cassette tape which you no longer need. Once the tape has been loaded or has entered the "play" mode press the POWER button to turn the power off. Disconnect the AC power plug from the AC socket after the cassette tape has been unloaded.
2) Remove the UPPER PLATE, FRONT GUIDE and CASSETTE LOAD BLK. (Refer to 3-1-1. Removal of the CASSETTE LOAD BLK.)
   Plug in the AC power cord. The LOADING ARM BLK will move backward (the cassette load BLK will be in the down position) and forward (the cassette load BLK will be in the eject position) continuously.
   With your fingers, cover and hold both SENSOR (S) and SENSOR (T) at the same time when the LOADING ARM BLK is in the backward position. The unit will enter the "play" mode without the cassette tape. While covering both sensors, press the "POWER" button. The unit will now enter the "tape unloaded" position. Release your fingers from the sensors, and disconnect the AC power plug from the AC power socket.

Pour mettre le mécanisme de déchargement à la position "déchargé", porcéder de la manière indiquée ci-dessous en 1) ou en 2).

1) Introduire une cassette inutilisée. Une fois que la cassette a été chargée ou que le mode de lecture a été activé, appuyer sur l'interrupteur d'alimentation pour mettre le magnétoscope hors tension. Débrancher le caordon d'alimentation une fois que la cassette a été déchargée.
2) Déposer la plaque supérieure (UPPER PLATE), le guide avant (FRONT GUIDE) et le bloc de chargement de cassette (CASSETTE LOAD BLK). (Se reporter à 3-1-1 "Dépose du bloc de chargement de cassette (CASSETTE LOAD BLK)".
   Brancher le cordon d'alimentation. Le bloc de bras de chargement (LOADING ARM BLK) se déplace vers l'arrière (le bloc de chargement de cassette est en position basse) et vers l'avant (le bloc de chargement de cassette est en position d'éjection) d'une manière continue.
   Avec les doigts tenir et couvrir en même temps les deux capteurs SENSOR (S) et SENSOR (T) lorsque le bloc de bras de chargement (LOADING ARM BLK) est en position arrière. L'appareil se met en mode de lecture sans cassette. Tout en couvrant les deux capteurs, appuyer sur l'interrupteur d'alimentation. L'appareil se met alors en position "cassette déchargée". Lâcher les deux capteurs et débrancher le cordon d'alimentation.

3-2-1. Removal of the MODE SELECT SWITCH

1) Release the two Ⓐ stoppers as shown in Fig. 3-5.

3-2-1. Dépose du sélecteur de mode (MODE SELECT SWITCH)

1) Libérer les deux pièces d'arrêt Ⓐ de la manière illustrée à la Fig. 3-5.

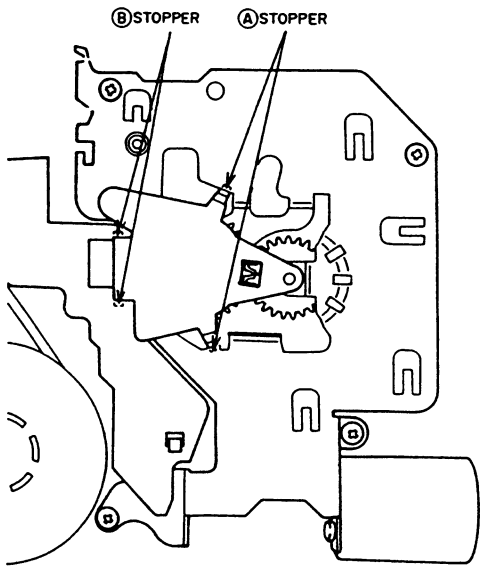


Fig. 3-5

2) Release the two Ⓑ stoppers carefully while pulling up the MODE SELECT SWITCH. Then remove the MODE SELECT SWITCH. (Do not damage the pins of the MODE SELECT SWITCH or the connector P1 on the SENSOR PCB).

2) Libérer les deux pièces d'arrêt Ⓑ avec précaution tout en soulevant le sélecteur de mode (MODE SELECT SWITCH). Déposer ensuite le sélecteur de mode (MODE SELECT SWITCH). (Faire attention de ne pas endommager les axes du sélecteur de mode (MODE SELECT SWITCH) ou du connecteur P1 sur la PCI capteur (SENSOR PCB).)

3-2-2. Removal of the SENSOR PC Board

1) Disconnect the connector P409 on the MAIN PCB.
2) Remove the capstan belt.
3) Release the Ⓐ, Ⓑ and Ⓒ stoppers as shown in Fig. 3-6. Then remove the SENSOR PCB.

3-2-2. Dépose de la plaquette CI capteur (SENSOR PCB)

1) Débrancher le connecteur P409 de la PCI principale (MAIN PCB).
2) Déposer la courroie de cabestan.
3) Libérer les pièces d'arrêt Ⓐ, Ⓑ et Ⓒ de la manière illustrée à la Fig. 3-6 puis déposer la PCI capteur (SENSOR PCB).

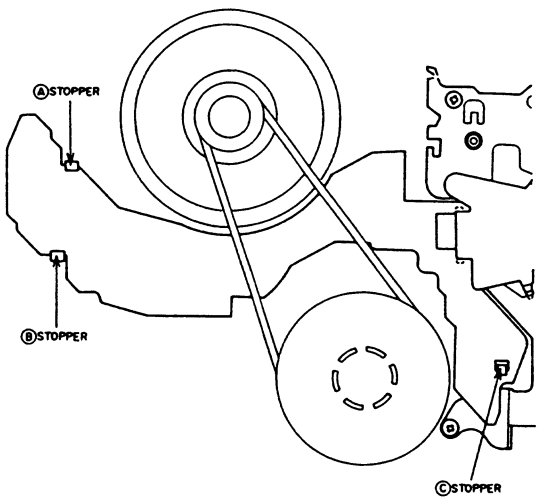


Fig. 3-6

3-3. REMOVAL OF THE LOADING DRIVE BLK

Set the loading mechanism at the "unloaded" position as well as 3-2 (REMOVAL OF THE SENSOR PC BOARD). However this time, to avoid damaging the tape and mechanical parts, refer to 3-2, *(2) only.

1) Remove the MODE SELECT SWITCH in the same manner as 3-2-1 (Removal of the MODE SELECT SWITCH).
2) Unhook the five wires from each tab. Two wires from the SENSOR(S), two wires from the LOADING MOTOR and one wire from the REC SAFETY SWITCH.
3) Remove the Ⓐ, Ⓑ, Ⓒ and Ⓓ screws, then remove the LOADING DRIVE BLK as shown in Fig. 3-7.

3-3. DEPOSE DU BLOC D'ENTRAINEMENT DE CHARGEMENT (LOADING DRIVE BLK)

Mettre le mécanisme de chargement sur la position "déchargé" de la manière indiquée en 3-2 (DEPOSE DE LA PLAQUETTE CI CAPTEUR). Dans ce cas, cependant, procéder de la manière décrite en 3-2 *(2) uniquement afin de ne pas endommager la bande et les pièces mécaniques.

1) Déposer le sélecteur de mode de la manière décrite en 3-2-1 (Dépose du sélecteur de mode (MODE SELECT SWITCH).)
2) Décrocher les cinq fils de chaque languette. Deux fils provenant du capteur SENSOR (S), deux fils du moteur de chargement (LOADING MOTOR) et un fil du commutateur de sécurité d'enregistrement (REC SAFETY SWITCH).
3) Déposer les vis Ⓐ, Ⓑ, Ⓒ et Ⓓ et déposer ensuite le bloc d'entraînement de chargement (LOADING DRIVE BLK) comme montré à la Fig. 3-7.

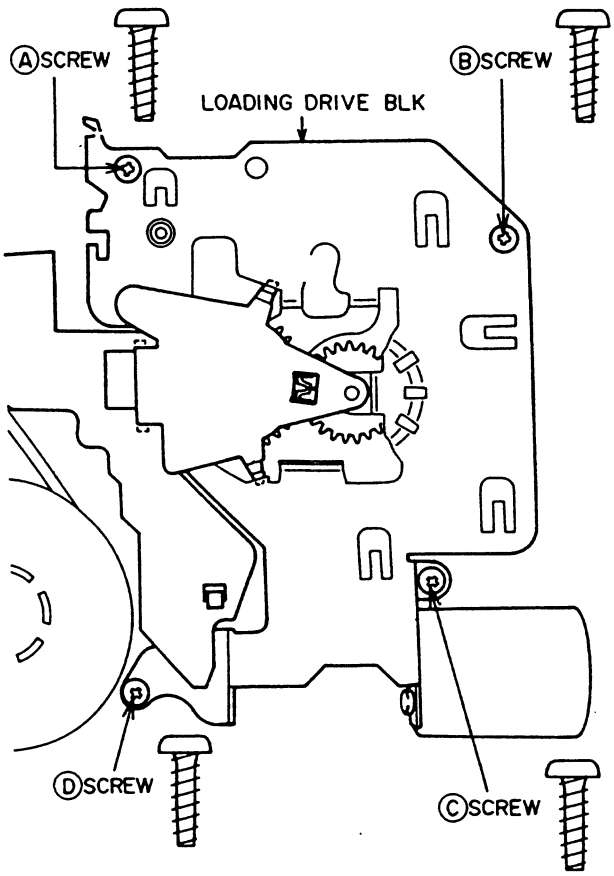


Fig. 3-7

3-4. REPLACEMENT OF THE PINCH HOLDER PART

1) Release the stopper of the PINCH ARM and remove the PINCH ARM BLK as shown in Fig 3-8.

3-4. REMPLACEMENT DU SUPPORT PRESSEUR (PINCH HOLDER PART)

1) Libérer la pièce d'arrêt du bras presseur (PINCH ARM) et déposer le bloc de bras presseur (PINCH ARM BLK) comme montré à la Fig. 3-8.

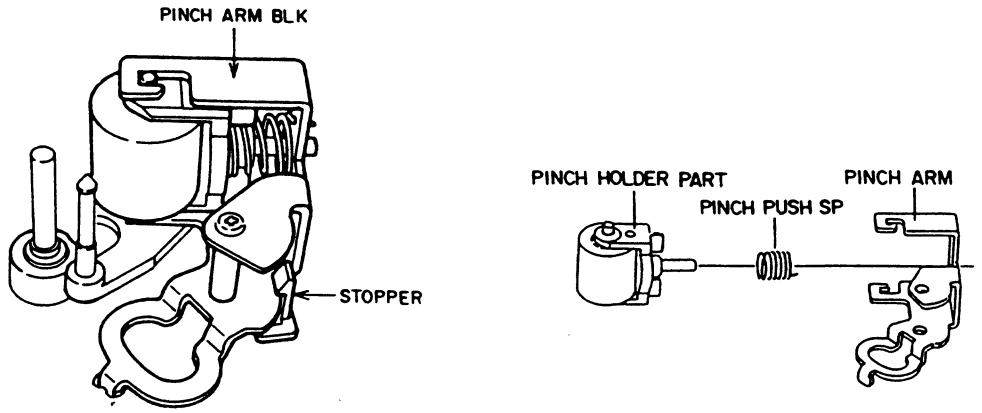


Fig. 3-8

2) Turn the PINCH HOLDER PART 30 degrees clockwise while pushing it backward and remove the PINCH HOLDER PART from the PINCH ARM.
3) Reassemble the PINCH ROLLER ARM BLK in the reverse order of 1) to 2).

2) Tourner le support presseur de 30 dans le sens des aiguille d'une montre tout en le poussant vers l'arrière et séparer le support presseur (PINCH HOLDER PART) du bras presseur (PINCH ARM).
3) Réassembler le bloc de bras presseur (PINCH ARM BLK) en procédant dans l'ordre inverse de 1) et 2).

3-5. REPLACEMENT OF THE IDLER PART AND REVIEW BRAKE PART

1) Remove the CASSETTE LOAD BLK & ARM LOADING BLK. (Refer to 3-1, REMOVAL OF THE EJECTOR BLK.)
2) Release the stopper of the IDLER PART as shown in Fig. 3-9, then remove it.

3-5. REMPLACEMENT DE L'ENGRENAGE INTERMEDIAIRE (IDLER PART) ET DU FREIN DE REMBOBINAGE RAPIDE (REVIEW BRAKE PART)

1) Déposer le bloc de chargement de cassette (CASSETTE LOAD BLK) et le bloc de bras de chargement (LOADING ARM BLK). (Se reporter à 3-1, DEPOSE DU BLOC EJECTEUR.)
2) Libérer la pièce d'arrêt de l'engrenage intermédiaire, comme montré à la Fig. 3-9, puis déposer ce dernier.

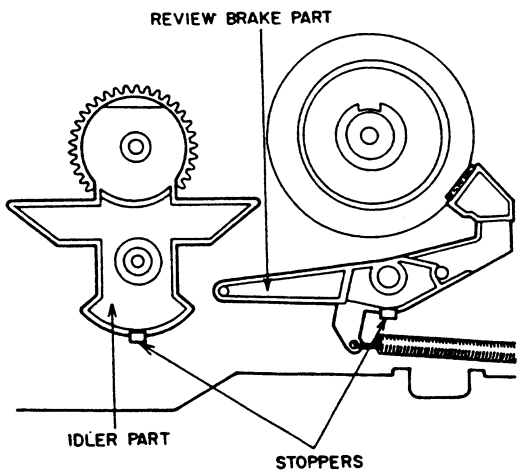


Fig. 3-9

3) Take off the review brake part spring, then release the stopper of the REVIEW BRAKE PART and remove it.
4) Reassemble these parts in the reverse order of 1) to 3).

3-6. REASSEMBLY OF THE LOADING MECH ANISM BLK

3-6-1. Position of the TOGGLE GEARs (T) and (S)

1) Set the TOGGLE GEAR (T) and TOGGLE GEAR (S) to the unloaded position with your fingers. Align the Ⓐ mark on the TOGGLE GEAR (S) with the Ⓐ hole of the TOGGLE GEAR (T) as shown in Fig. 3-10.

3) Sortir le ressort du frein de rembobinage rapide, puis libérer la pièce d'arrêt du frein de rembobinage rapide (REVIEW BRAKE PART) et déposer ce dernier.
4) Reposer ces pièces en procédant dans l'ordre inverse des opérations indiquées de 1) à 3).

3-6. REMONTAGE DU BLOC DU MECANISME DE CHARGEMENT

3-6-1. Position des pignons de bascule (TOGGLE GEAR) (T) et (S)

1) Mettre les pignons de bascule (TOGGLE GEAR) (T) et (S) sur la position déchargé avec les doigts. Aligner le repère (A) du pignon (TOGGLE GEAR) (S) sur le trous (A) du pignon (TOGGLE GEAR) (T) comme illustré à la Fig. 3-10.

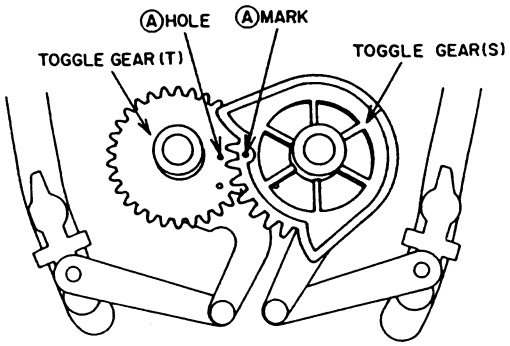


Fig. 3-10

3-6-2. Installation of the CAM SLIDER GEAR & FRONT LOADING GEAR

1) Attach the WORM WHEEL GEAR as shown in Fig. 3-11.

3-6-2. Installation du pignon coulissant de came (CAM SLIDER GEAR) et du pignon de chargement avant (FRONT LOADING GEAR)

1) Fixer la roue à vis sans fin (WORM WHEEL GEAR) comme montré à la Fig. 3-11.

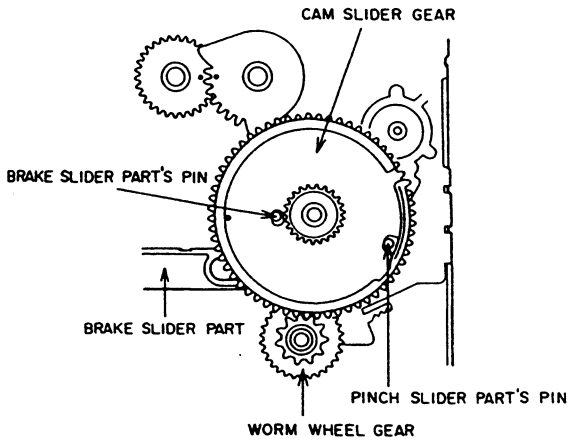


Fig. 3-11

2) Set the CAM SLIDER GEAR. At this time, adjust the position of the BRAKE SLIDER PART and PINCH SLIDER PART so that both pins appear through the holes on the CAM SLIDER GEAR as shown in Fig. 3-11.

2) Poser le pignon coulissant de came (CAM SLIDER GEAR). Ajuster en même temps la position des pièces BRAKE SLIDER PART et PINCH SLIDER PART de manière à ce que les deux axes apparaissent au travers des trous du pignon coulissant de came (CAM SLIDER GEAR) comme montré à la Fig. 3-11.

3) Attach the FRONT LOADING GEAR as shown in Fig. 3-12. At this time, align the Ⓑ mark on the FRONT LOADING GEAR with the Ⓑ hole of the FRONT LOADING SLIDER as shown in Fig. 3-13.

3) Fixer le pignon de chargement avant (FRONT LOADING GEAR) comme montré à la Fig. 3-12. Aligner alors le repère Ⓑ du pignon de chargement avant (FRONT LOADING GEAR) sur le trou Ⓑ du coulisseau de chargement avant (FRONT LOADING SLIDER) comme montré à la Fig. 3-13.

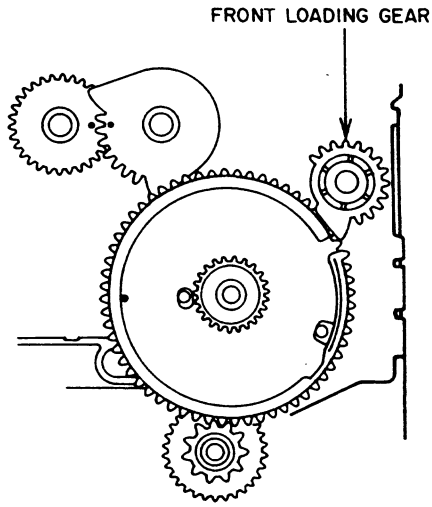


Fig. 3-12

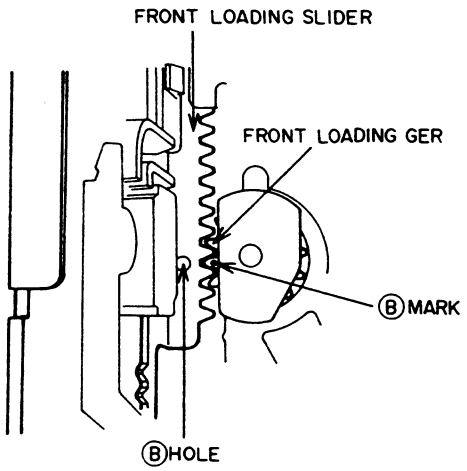


Fig. 3-13

3-6-3. Confirmation of the position of the EJECT GEAR

1) Confirm that the EJECT GEAR is in the correct position as shown in Fig. 3-14.

3-6-3. Contrôle de la position du pignon d'éjection (EJECT GEAR)

1) Confirmer que le pignon d'éjection (EJECT GEAR) est dans la position correcte comme montré à la Fig. 3-14.

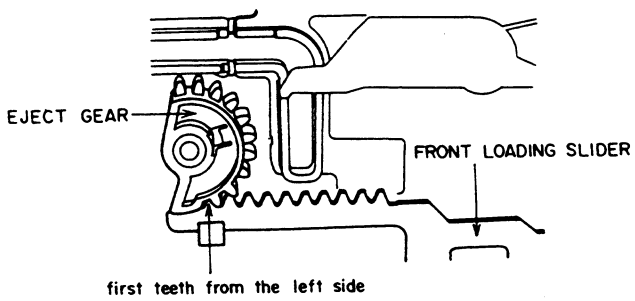


Fig. 3-14

2) Install the LOADING DRIVE BLK as shown in Fig. 3-15.

2) Installer le bloc d'entraînement de chargement (LOADING DRIVE BLK) comme montré à la Fig. 3-15.

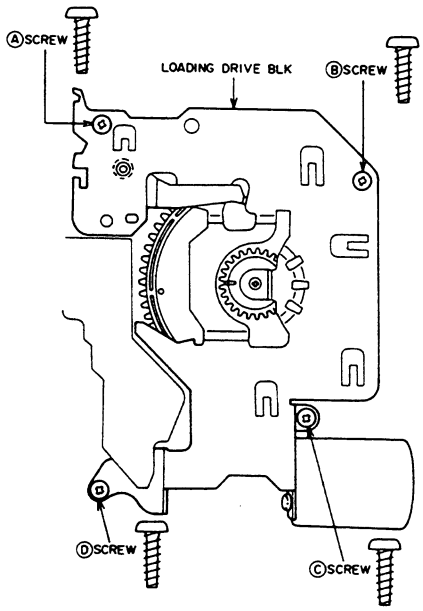


Fig. 3-15

3-6-4. Installation of the MODE SELECT SWITCH

1) Set the MODE SELECT SWITCH's gear so that the © mark is in the center of the © hole as shown in Fig. 3-16.

3-6-4. Installation du sélecteur de mode (MODE SELECT SWITCH)

1) Poser le pignon du sélecteur de mode (MODE SELECT SWITCH) de sorte que le repère © soit placé au centre du trou © comme montré à la Fig. 3-16.

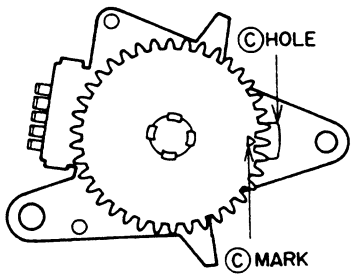


Fig. 3-16

2) Attach the MODE SELECT SWITCH to the LOADING DRIVE BLK. At this time, align the hollow of the gear's tooth (reverse side of the © mark) with the © groove of the CAM SLIDER GEAR as shown in Fig. 3-17.

2) Fixer le sélecteur de mode (MODE SELECT SWITCH) au bloc d'entraînement de chargement (LOADING DRIVE BLK). Aligner alors le creux de la dent du pignon (côté opposé au repère ©) sur l'encoche © du pignon coulissant de came (CAM SLIDER GEAR) comme montré à la Fig. 3-17.

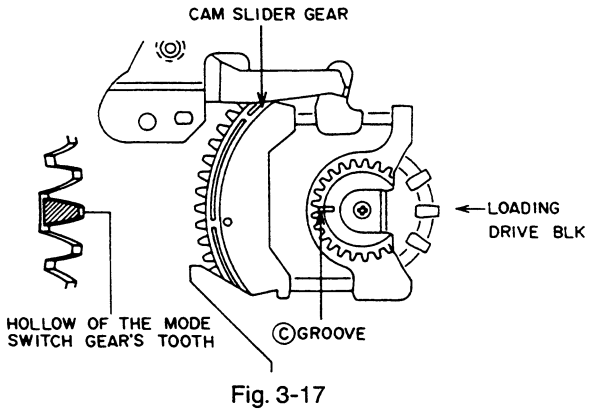


Fig. 3-17

3-6-5. Installation of the LOADING ARM BLK

1) While covering the SENSOR (S) with your fingers, connect the AC power plug to the AC socket. The FRONT LOADING SLIDER will reach the "EJECT" position. Then disconnect the AC power plug from the AC socket before you release your fingers from the SENSOR (S).
2) Install the LOADING ARM BLK in the reverse order of 3-1-2 (Removal of the LOADING ARM BLK). Set the position between both the EJECT GEAR and the JOINT GEAR as shown in Fig. 3-18.

3-6-5. Installation du bloc de bras de chargement (LOADING ARM BLK)

1) Tout en couvrant le capteur (SENSOR) (S) avec les doigts, brancher le cordon d'alimentation à une prise murale. Le coulisseau de chargement avant (FRONT LOADING SLIDER) atteint la position d'éjection "EJECT". Débrancher le cordon d'alimentation avant de relâcher le capteur (SENSOR) (S).
2) Poser le bloc de bras de chargement (LOADING ARM BLK) en procédant dans l'ordre inverse de 3-1-2 "Dépose du bloc de bras de chargement (LOADING ARM BLK)". Régler la position respective du pignon d'éjection 9EJECT GEAR) et du pignon commun (JOINT GEAR) comme montré à la Fig. 3-18.

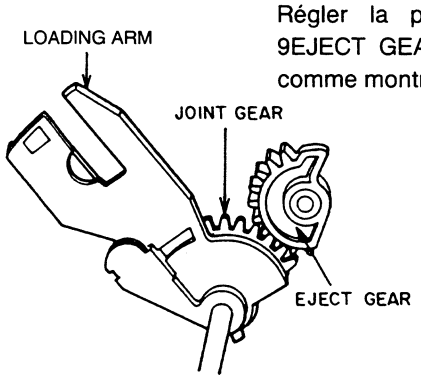


Fig. 3-18

3-6-6. Installation of the CASSETTE LOAD BLK, FRONT GUIDE and UPPER PLATE

1) Attach the CASSETTE LOAD BLK, FRONT GUIDE and UPPER PLATE in the reverse order of 3-1-1 (Removal of the CASSETTE LOAD BLK).
2) Insert a video cassette tape and confirm that the loading mechanism will operate properly.

3-6-6. Pose du bloc de chargement de cassette (CASSETTE LOAD BLK), du guide avant (FRONT GUIDE) et de la plaque supérieure (FRONT PLATE)

1) Poser le bloc de chargement de cassette (CASSETTE LOAD BLK), le guide avant (FRONT GUIDE) et la plaque supérieure (FRONT PLATE) en procédant dans l'ordre inverse indiqué en 3-1-1 "Dépose du bloc de chargement de cassette (CASSETTE LOAD BLK)".
2) Introduire une cassette et confirmer que le mécanisme de chargement fonctionne correctement.

3-7. REPLACEMENT OF THE UPPER DRUM

3-7-1. Removal of the UPPER DRUM

1) Unsolder the four (for models VS-F10S/F11S) or six (for models VS-F12S/F12SK/F15S) relay leads and remove the two upper drum fixing screws as shown in Fig. 3-19.
2) Gently lift and remove the UPPER DRUM.

3-7. REMPLACEMENT DU TAMBOUR SUPERIEUR (UPPER DRUM)

3-7-1. Dépose du tambour supérieur (UPPER DRUM)

1) Dessouder les quatre (modèle VS-F10S) ou les six (modèles VS-F12S/F12SK/F15S) conducteurs de relais et déposer les deux vis de fixation du tambour supérieur comme montré à la Fig. 3-19.
2) Soulever avec précaution et déposer le tambour supérieur (UPPER DRUM).

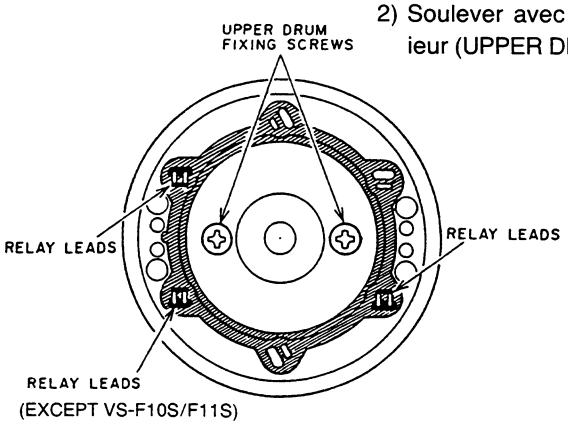


Fig. 3-19

3-7-2. Installation of the UPPER DRUM

[For models VS-F10S/F11S]

Attach the UPPER DRUM to the LOWER DRUM ROTOR so that the upper drum convex Ⓐ and lower drum rotor's white PCB side are in the same direction as shown in Fig. 3-20.

3-7-2. Pose du tambour supérieur (UPPER DRUM)

[Modèle VS-F10S/F11S]

Fixer le tambour supérieur (UPPER DRUM) sur le rotor de tambour inferieur (LOWER DRUM ROTOR) de sorte que la partie convexe Ⓐ du tambour supérieur et le côté PCI blanche du rotor de tambour inférieur soient dirigés dans le même sens comme montré à la Fig. 3-20.

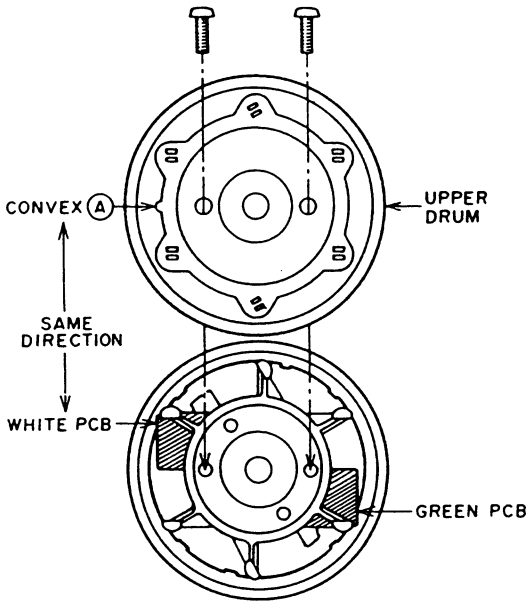


Fig. 3-20

[For models VS-F12S/F12SK/F15S]

Attach the UPPER DRUM to the LOWER DRUM ROTOR so that the upper drum convex Ⓐ and lower drum rotor's white mark are in the same direction as shown in Fig.3-21.

[Modèles VS-F12S/F12SK/F15S]

Fixer le tambour supérieur (UPPER DRUM) sur le rotor de tambour inferieur (LOWER DRUM ROTOR) de sorte que la partie convexe Ⓐ du tambour supérieur et le repère blanc du rotor de tambour inférieur soient dirigés dans le même sens comme montré à la Fig. 3-21.

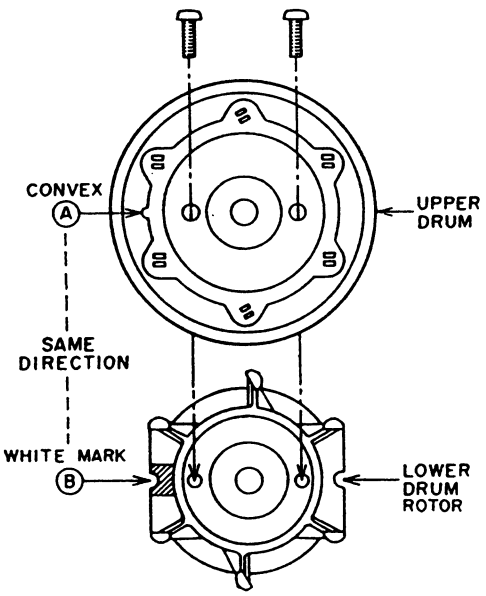


Fig. 3-21

NOTE: Because height precision is required for proper performance, and because head tips are fragile, the following points should be noted when replacing the UPPER DRUM BLOCK.

(a) Do not loosen the set screw on the collar preload.
(b) Before fixing, use alcohol to clean both surfaces where the upper drum and the rotary transformer meet.
(c) If the UPPER DRUM can not be inserted on to the shaft easily during installation, clean the hole in the UPPER DRUM with alcohol and put a little oil on the shaft.
(d) Make sure that the upper drum fixing screw holes on the rotary transformer part and the upper drum fixing screw penetration holes match exactly before inserting the fixing screws.
(e) Tighten the two upper drum fixing screws alternately and gradually.

3-7-3. After replacement

After replacement, the following adjustments are necessary for the proper performance.
1) Control head Phase adjustment (IV. MECHANICAL ADJUSTMENT 4-3-3.)
2) PB switching point adjustment. (V. ELECTRICAL ADJUSTMENT Step 1)
3) Video head REC current adjustment. (V. ELECTRICAL ADJUSTMENT Step 10)

3-8. DRUM MOTOR PC BOARD REPLACEMENT

1) Remove the two Ⓐ screws then remove the ROTARY PLATE.

REMARQUE: Du fait que la hauteur doit être réglée avec une grande précision pour que l'appareil fonctionne correctement et du fait que le bout des têtes est fragile, observer les points suivant lors du remplacement du bloc de tambour supérieur (UPPER DRUM BLOCK).

(a) Ne pas desserrer la vis de précharge du collier.
(b) Avant de poser, nettoyer les surfaces de contact du tambour supérieur et du transformateur rotatif avec de l'alcool.
(c) Si lors de l'installation le tambour supérieur ne peut pas glisser facilement sur l'axe, nettoyer l'orifice du tambour supérieur avec de l'alcool et appliquer un peu d'huile sur l'axe.
(d) S'assurer que les trous de vis de fixation sur le tambour supérieur sur le transformateur rotatif coïncident parfaitement avant d'introduire les vis.
(e) Serrer chacune des deux vis de fixation du tambour supérieur alternativement et progressivement.

3-7-3. Après le remplacement

Après le remplacement, il est nécessaire d'effectuer les réglages suivants pour que l'appareil fonctionne correctement.
1) Réglage de la phase de tête de commande (IV. REGLAGES MECANIQUES 4-3-3).
2) Réglage du point de commutation de lecture "PB" (V. REGLAGES ELECTRIQUES, Etape 1).
3) Réglage de l'intensité d'enregistrement "REC" de la tête vidéo (V. REGLAGES ELECTRIQUES, Etape 10)

3-8. REMPLACEMENT DE LA PCI DU MOTEUR DE TAMBOUR

1) Déposer les deux vis Ⓐ puis déposer la plaque rotative (ROTARY PLATE).

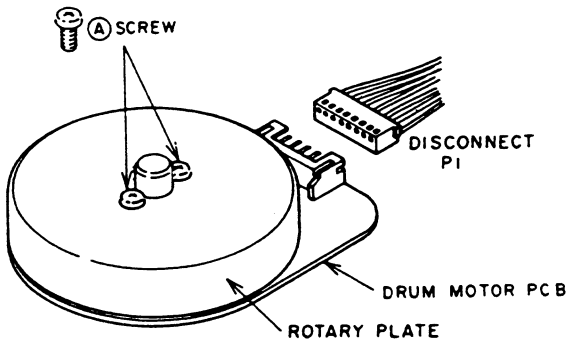


Fig. 3-22

2) Remove the three Ⓑ screws and disconnect the connector P1 from the DRUM MOTOR PCB. Then replace the DRUM MOTOR PCB.

2) Déposer les trois vis Ⓑ et débrancher le connecteur P1 de la PCI du moteur de tambour (DRUM MOTOR PCB). Remplacer ensuite la PCI du moteur de tambour (DRUM MOTOR PCB).

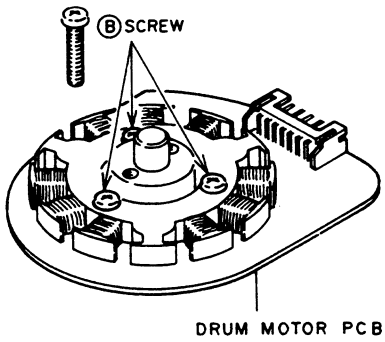


Fig. 3-23

3) Attatch the ROTARY PLATE to the collar preload so that the rotary plate Ⓒ hole and collar preload Ⓓ hole are in the same direction.

3) Fixer la plaque rotative (ROTARY PLATE) au collier de précharge de manière que le trou Ⓒ de la plaque rotative et le trou Ⓓ du collier de précharge soient dirigés dans le même sens.

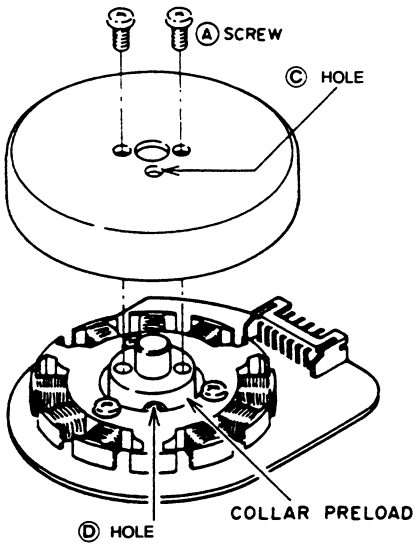


Fig. 3-24

3-9. REMOVAL OF THE MECHANISM BLOCK

3-9-1. Removal of the PRE AMP PC Board

1) Remove the Ⓑ screw on the DIODE PCB and remove the DIODE PCB. (VS-F12SK ONLY)
2) Remove the two Ⓐ screws then pull up the PRE AMP PCB as shown in Fig. 3-25.

3-9. DEPOSE DU BLOC DE MECANISME

3-9-1. Dépose de la PCI de préampli (PRE AMP PCB)

1) Déposer la vis Ⓑ de la PCI de diode (DIODE PCB) et déposer cette dernière. (VF-F12SK uniquement)
2) Déposer les deux vis Ⓐ puis soulever la PCI de préampli (PRE AMP PCB) comme montré à la Fig. 3-25.

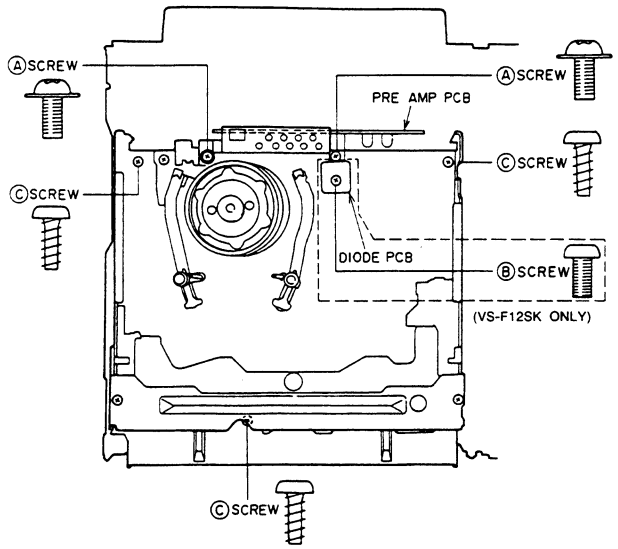


Fig. 3-25

3-9-2. Removal of the MECHANISM BLK (MECHA. FRAME)

1) Disconnect the connectors P302, P401, P408, P409 on the MAIN PCB and P1 on the A/C HEAD PCB.
2) Remove the three Ⓒ screws from the MECHA. FRAME as shown in Fig. 3-25.
3) Hold the rear side of the MECHA. FRAME then remove by pulling up backward.
4) Reassemble in the reverse order for installation.

3-9-2. Dépose du bloc de mécanisme (MECHA. FRAME)

1) Débrancher les connecteurs P302, P401, P408, P409 sur la PCI principale (MAIN PCI) et P1 sur la PCI de tête A/C (A/C HEAD PCB)
2) Déposer les trois vis Ⓒ du bloc de mécanisme (MECHA. FRAME) comme montré à la Fig. 3-25.
3) Tenir la partie arrière du bloc de mécanisme (MECHA. FRAME) et déposer le bloc en le tirant vers le haut.
4) Remonter en procédant dans l'ordre inverse de la dépose.

IV. MECHANICAL ADJUSTMENT

4-1. BACK TENSION ADJUSTMENT

1) Set the color bar test tape TF-512CB (AT-750799) in the VCR and play it back.
2) Observe the TV screen and adjust the V-HOLD of the TV so that the switching point appears on the TV screen as shown in Fig. 4-1.

IV. REGLAGES MECANIQUES

4-1. REGLAGE DE LA TENSION DE RETOUR

1) Introduire la bande d'essai à barre de couleur TF-512CB (AT-750799) et mettre le magnétoscope en mode de lecture.
2) Observer l'écran de TV et régler la commande V-HOLD du téléviseur de manière que le point de commutation apparaisse sur l'écran comme indiqué à la Fig. 4-1.

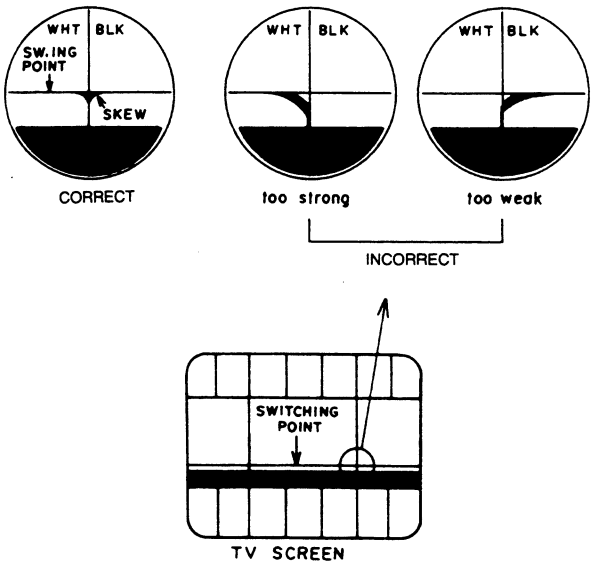


Fig. 4-1

3) Check the skew near the switching point on the TV screen and if the back tension is too strong or too weak, eject the tape and select the hook position of the TENSION SPRING where the smallest skew should be obtained.

3) Vérifier l'obliquité à proximité du point de commutation sur l'écran TV et si la tension de retour est trop élevée ou trop faible, éjecter la cassette et sélectionner la position d'accrochage du ressort tendeur (TENSION SPRING) donnant le moins d'obliquité possible.

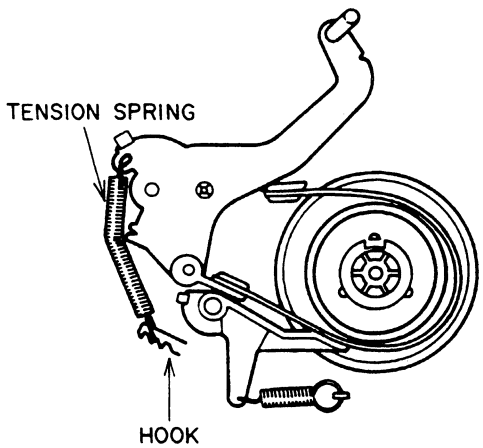


Fig. 4-2

4-2. TAPE TRANSPORT ADJUSTMENTS

NOTE: The following adjustments are required only when an irregularity is found since these adjustment are performed precisely at the factory.

4-2-1. Tape curl adjustment at the TAKE-UP TAPE GUIDE

1) Play back a recorded tape which is no longer needed.
2) Turn the Ⓐ screw on the A/C HEAD BLK until the edge of the tape barely touches the lower part of TAKE UP TAPE GUIDE without any curl or wrinkle.
3) Once the Ⓐ screw is adjusted, A/C HEAD height and azimuth adjustment is required. (Refer to 4-3. A/C HEAD POSITION ADJUSTMENT.)

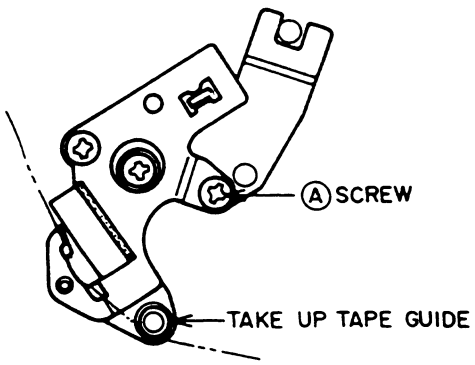


Fig. 4-3

4-2. REGLAGES DU TRANSPORT DE LA BANDE

REMARQUE: Les réglages suivants ne doivent être effectués que si une irrégularité est détectée du fait qu'il sont réalisés avec précision en usine.

4-2-1. Réglage de l'enroulement de la bande côté guide d'enroulement (TAKE UP TAPE GUIDE)

1) Lire une bande enregistrée inutilisée.
2) Tourner la vis Ⓐ sur le bloc de tête (A/C HEAD BLK) jusqu'à ce que le bord de la bande touche à peine la partie inférieure du guide d'enroulement (TAKE UP TAPE GUIDE) sans aucun pli ou ondulation.
3) Une fois que le réglage de la vis Ⓐ a été effecuté, il est nécessaire de régler l'azimut et la hauteur. (Se reporter à 4-3 REGLAGE DE LA POSITION DE TETE A/C)

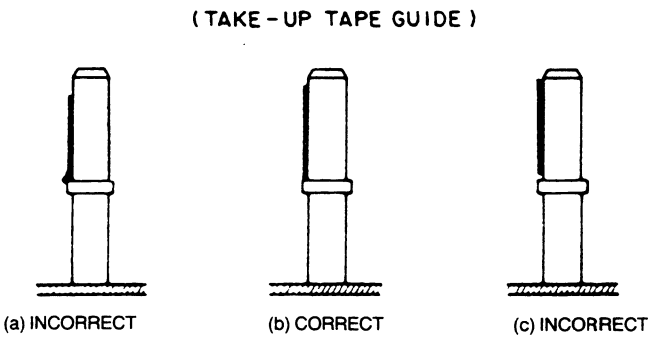


Fig. 4-4

4-2-2. Confirmation of tape curl at the SUPPLY TAPE GUIDE

Confirm that the edge of the tape barely touches the lower part of the SUPPLY TAPE GUIDE without any curl or wrinkle as shown in Fig. 4-5.

4-2-2. Contrôle de l'enroulement de la bande côté guide d'avance (SUPPLY TAPE GUIDE)

Confirmer que le bord de la bande touche à peine la partie inférieure du guide d'avance (SUPPLY TAPE GUIDE) sans aucun pli ou ondulation, comme montré à la Fig. 4-5.

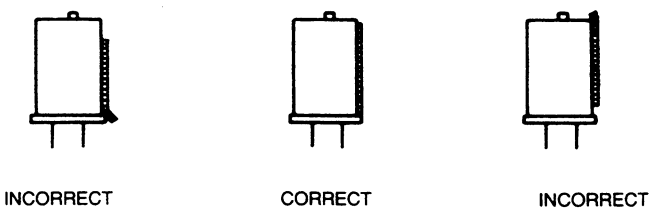


Fig. 4-5

4-2-3. REVIEW ARM height adjustment

1) Play back the beginning part of an E-240 (T-160) tape and set the unit in the REVIEW mode by pressing the REW button.
(Remove the tape protection cover to make the adjustment easy.)

4-2-3. Reglage de la hauteur du bras de rembobinage (REVIEW ARM)

1) Lire le début d'une bande E-240 (T-160) et appuyer sur la touche de rembobinage (REW) pour mettre l'appareil dans ce mode.
(Retirer le volet de protection de la bande pour faciliter ce réglage.)

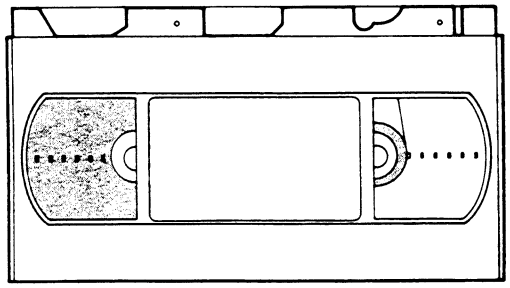


Fig. 4-6

2) Turn the REVIEW ARM height Ⓐ nut so that the edge of the tape barely touches the lower part of the TAKE-UP TAPE GUIDE without any curl or wrinkle between the TAKE-UP TAPE GUIDE and the CAPSTAN SHAFT as shown in Fig. 4-7 to Fig. 4-9.

2) Tourner l'écrou Ⓐ de réglage de la hauteur du bras de rembobinage (REVIEW ARM) de manière que le bord de la bande touche à peine la partie inférieure du guide d'enroulement (TAKE UP TAPE GUIDE) sans aucun pli ou ondulation entre ce dernier et l'axe de cabestan, comme montré aux Fig. 4-7 à 4-9.

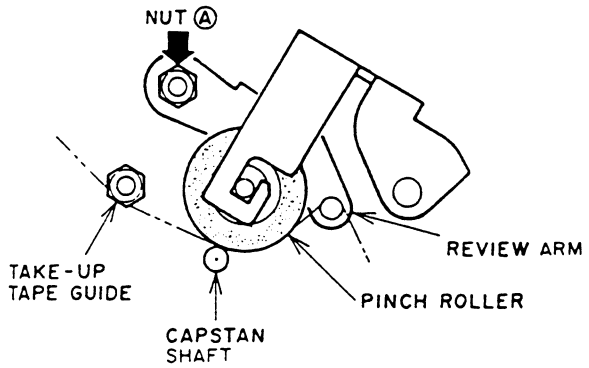


Fig. 4-7

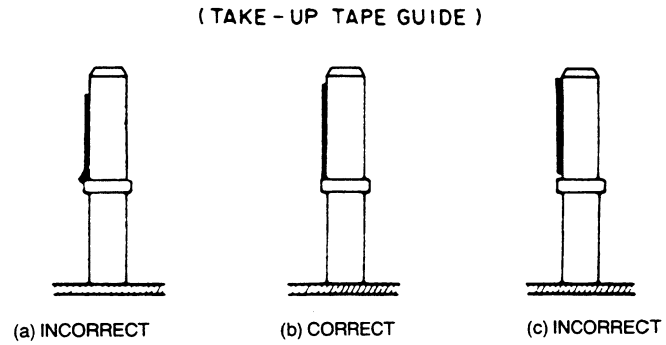


Fig. 4-8

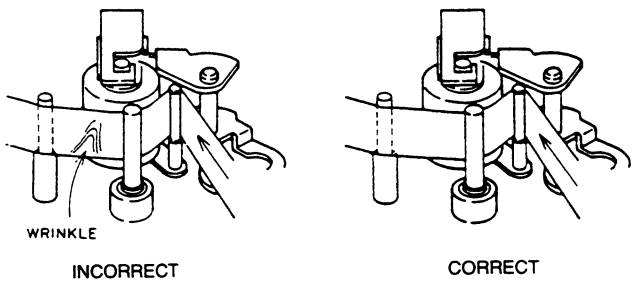
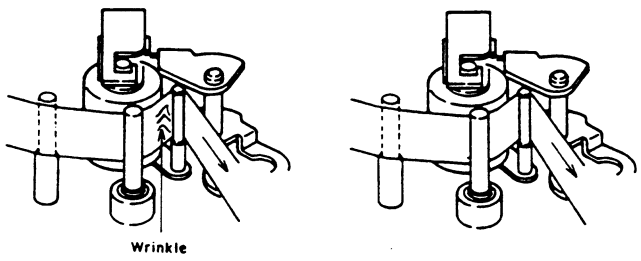


Fig. 4-9

3) Play back the beginning part of an E-240 (T-160) tape and this time set the unit in the CUE mode by pressing the F.FWD button.
4) Confirm there is no curl or wrinkle at REVIEW ARM's guide.
If curl or wrinkle of the tape has occured, slightly turn the Ⓐ nut (Shown in Fig. 4-7) until it disappears.

3) Lire le début d'une bande E-240 (T-160) et mettre cette fois appuyer sur la touche d'avance rapide (F.FWD) pour mettre l'appareil dans ce mode.
4) Confirmer qu'il n'y a aucun pli ou ondulation au niveau du bras de rembobinage (REVIEW ARM).
Si la bande présente des plis ou ondulations, tourner légèrement l'écrou Ⓐ (Montré à la Fig. 4-7) jusqu'à ce que la bande soit tendue.

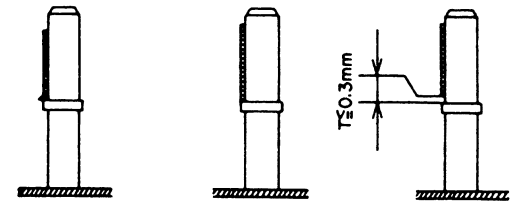


INCORRECT CORRECT

Fig. 4-10

5) Set the unit in REVIEW mode again. Then confirm that there is no curl or wrinkle at the TAKE UP TAPE GUIDE.
(A small gap may appear after this adjustment, but this is allowable)

5) Mettre l'appareil à nouveau en mode de rembobinage et confirmer que la bande ne présente aucun pli ou ondulation au niveau du guide d'enroulement (TAKE UP TAPE GUIDE).
(Un léger écartement peut apparaître après ce réglage, mais ceci est admissible.)



(a) INCORRECT (b) CORRECT (c) CORRECT

Fig. 4-11

NOTE:
1. If results are not satisfactory, repeat steps 2) to 5).
2. Always play an undamaged tape to obtain satisfactory adjustment.
3) Because an E-240 (T-160) tape can easily be damaged due of its thinness, a pre-adjustment with an E-180 (T-120) tape is recommended.

REMARQUE:
1. Si les résultats ne sont pas satisfaisant répéter les opérations 2) à 5).
2. Toujours utiliser une bande qui ne soit pas abimées afin d'effectuer correctement les réglages.
3. Du fait que les bandes E-240 (T-160) étant très minces sont facilement endommagées, il est conseillé d'effectuer un réglage préliminaire avec une bande E-180 (T-120).

4-2-4. LOADING LEADER height adjustments

1) Slightly loosen the set screw at the lower part of the LOADING LEADERs (L), (R) so that the LOADING LEADER can be adjusted with reasonable tightness. (Refer Fig. 4-12.)
2) Play back the reference tape TF-530RFS (AT-751775).
3) Connect an oscilloscope's CH-1 to IC701 (BA7107S) ① pin on the VIDEO PCB and CH-2 to JW71 (SWP) on the MAIN PCB for triggering.
4) Turn the LOADING LEADER heads with a flat head (—) screw driver to obtain flat RF envelope as ideal envelope as shown in Fig. 4-13.
5) After adjustment is completed, tighten the loading leader set screws.

4-2-4. Réglages de la hauteur des guides de chargement (LOADING LEADER)

1) Desserrer légèrement la vis de réglage à la partie inférieure des guides de chargement (LOADING LEADER) (L) et (R) afin que les guides puissent être ajustés avec un serrage suffisant. (Voir la Fig. 4-12)
2) Lire la bande de référence TF-530RFS (AT-751775).
3) Connecter un oscilloscope, CH-1 à la broche (1) IC701 (BA7107S) sur la PCI vidéo (VIDEO PCB) et CH-2 à JW71 (SWP) sur la PCI principale (MAIN PCB) pour le déclenchement.
4) Tourner les têtes de guides de chargement à l'aide d'un tournevis plat de manière à obtenir une enveloppe RF similaire à l'enveloppe idéale montrée à la Fig. 4-13.
5) Une fois que ces réglages sont terminés, serrer la vis de régalge des guides de chargement.

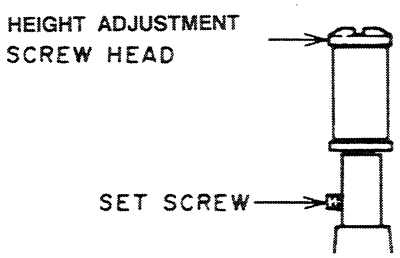


Fig. 4-12

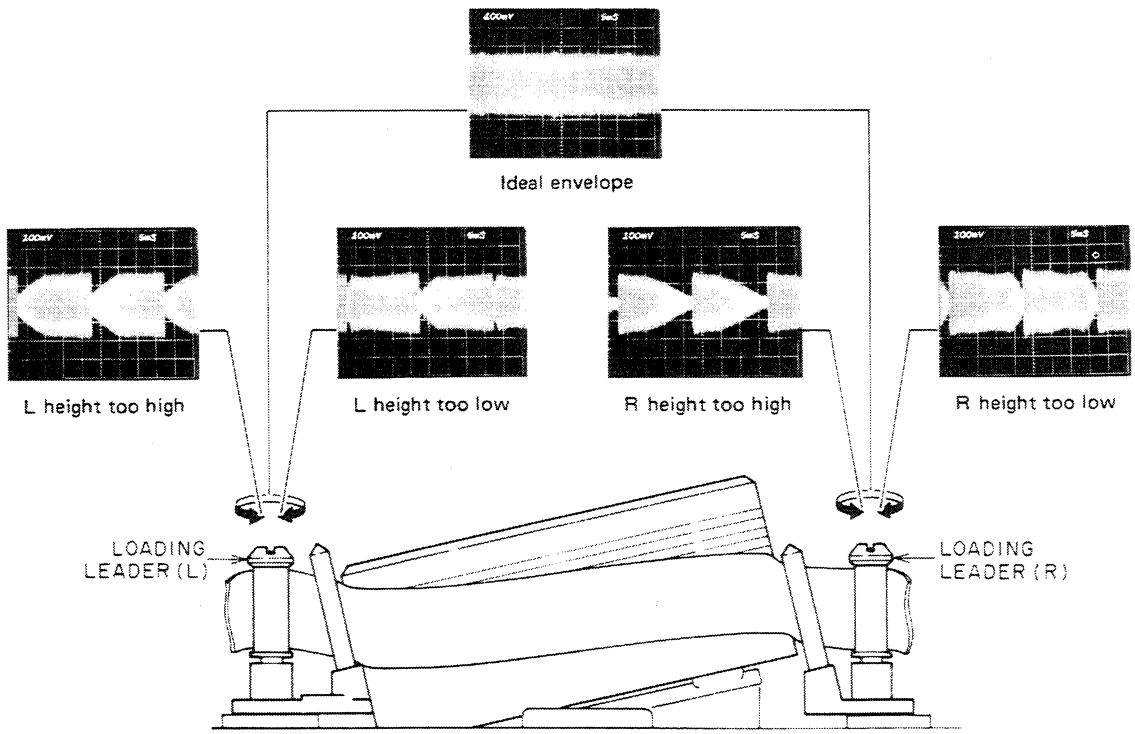


Fig. 4-13

4-3. A/C HEAD POSITION ADJUSTMENT

4-3-1. Azimuth adjustment

1) Connect an AC voltmeter or an oscilloscope to the AUDIO OUT terminal on the rear panel.
2) Play back the reference tape TF-530RFS (AT-751775).
3) Adjust the Ⓑ screw to obtain the maximum audio output.

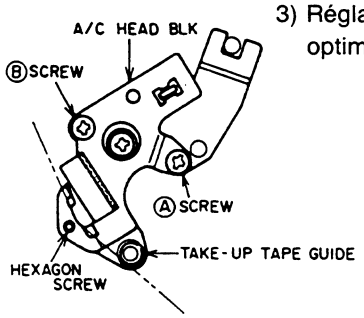


Fig. 4-14

4-3-2. Height adjustment

1) Play back the test tape TF-526HH (AT-751788).
2) Connect an oscilloscope's CH-1 to the TP22 (S model) on the CANAL PLUS (B) PCB or TP23 (SK model) on the CANAL PLUS (A) PCB.
   Connect CH-2 to TP502 (CTL CHK) on the MAIN PCB.
3) Turn the hexagon screw to obtain 1/2 of the output level of either CH-1 or CH-2 whichever has an output signal as shown in Fig. 4-15.
   Then set both of the oscilloscope's channels to 100 mV/div and finely adjust the hexagon screw until both signals of CH-1 and CH-2 are nearly the same level.
4) Slightly turn the Ⓐ screw until the tape edge barely touches the lower part of the TAKE UP TAPE GUIDE without any curl or wrinkle as shown in Fig. 4-4.
5) Adjust the head azimuth again. (Turning the hexagon screw or Ⓐ screw will cause head azimuth mis-alignment. Refer to 4-3-1. Azimuth adjustment.)
6) Confirm that both signals of CH-1 and CH-2 are nearly the same level (Confirm that neither of the CH-1 or CH-2 output levels exceed 100 mVp-p). If the result is not satisfactory, repeat steps 3) to 5).

4-3. REGLAGE DE LA POSITION DES TETE A/C

4-3-1. Réglage d'azimut

1) Connecter un voltmètre CA ou un oscilloscope à la borne de sortie audio (AUDIO OUT) sur le panneau arrière.
2) Lire la bande de référence TF-530RFS (AT-751775).
3) Réglar la vis Ⓑ de manière à obtenir la sortie audio optimale.

4-3-2. Réglage de la hauteur

1) Lire la bande de référence TF-526HH (AT-751788).
2) Connecter CH-1 d'un oscillocope à TP22 (modèle S) sur la PCI CANAL PLUS (B) ou à TP23 (modèle SK) sur la PCI CANAL PLUS (A).
   Connecter CH2 à TP502 (CTL CHK) sur la PCI principale (MAIN PCB).
3) Tourner la vis hexagonale afin d'obtenir la moitié du niveau de sortie sur CH-1 ou CH-2 comme montré à la Fig. 4-15.
   Régler ensuite les deux canaux de l'oscilloscope à 100 mV/div et régler minutieusement la vis hexagonale jusqu'à ce que le niveau des signaux de CH-1 et CH-2 soit presque identique.
4) Tourner légèrement la vis Ⓐ jusqu'à ce que le bord de la bande touche à peine la partie inférieure du guide d'enroulement (TAKE UP TAPE GUIDE) sans aucun plis ou ondulation, comme montré à la Fig. 4-4.
5) Régler à nouveau l'azimut de la tête. (Le fait de tourner la vis hexagonale ou la vis Ⓐ provoquera un défaut d'alignement en azimut de la tête. Voir 4-3-1, Réglage de l'azimut.)
6) Confirmer que le niveau de sortie de CH-1 et celui de CH-2 sont pratiquement les mêmes.
   (Confirmer que ni le niveau de sortie de CH-1 ni celui de CH-2 ne dépasse 100 mVp-p.)
   Si les résultats ne sont pas satisfaisants, répéter les opérations 3) à 5).

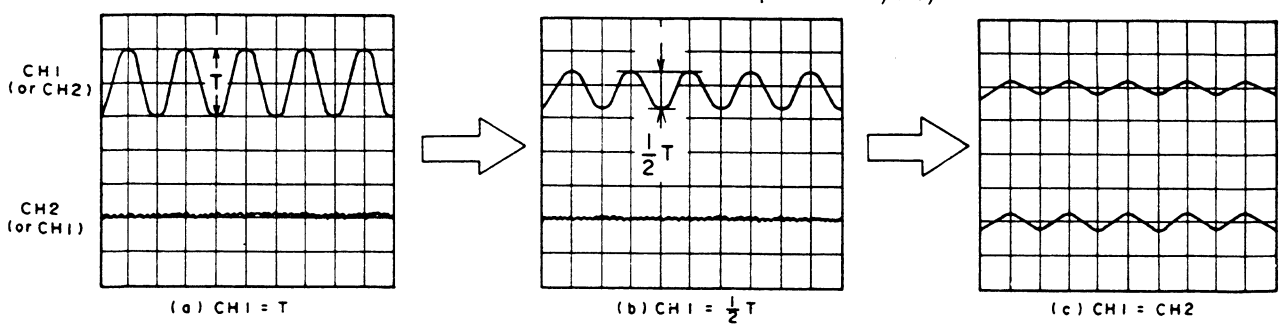


Fig. 4-15

4-3-3. Phase adjustment

1) Connect an oscilloscope's CH-1 to IC701 (BA7107S) ① pin on the VIDEO PCB and CH-2 to JW71 (SWP) on the MAIN PCB for triggering.
2) Play back the reference tape TF-530RFS (AT-851775).
3) Press one of the TRACKING buttons on the remote control until the "X" mark can be seen in the center position of the tracking range on the TV screen as shown in Fig. 4-16.
4) Loosen the © screw slightly so that the A/C HEAD PLATE can be moved with reasonable tightness.
5) Insert a sharp flat head (—) screwdriver into the A/C HEAD BASE and Ⓐ hole as shown in Fig. 4-18.
6) Move the A/C HEAD BASE by moving a screwdriver in the direction of the arrow as shown in Fig. 4-18 to obtain the maximum RF output, then tighten the © screw.

4-3-3. Réglage de la phase

1) Connecter un oscilloscope, CH-1 à la broche ① IC701 (BA7107S) sur la PCI vidéo (VIDEO PCB) et CH-2 à JW71 (SWP) sur la PCI principale (MAIN PCB) pour le déclenchement.
2) Lire la bande de référence TF-530RFS (AT-851775).
3) Appuyer sur l'une des touches d'alignement (TRACKING) de la télécommande jusqu'à ce que le repère "X" apparaisse au centre de la plage d'alignement sur l'écran TV, comme montré à la Fig. 4-16.
4) Desserrer légèrement la vis © afin de pouvoir déplacer la plaque de tête A/C (A/C HEAD PLATE) tout en conservant un serrage suffisant.
5) Introduire un tournevis plat fin dans la base de tête A/C (A/C HEAD BASE) et dans l'orifice Ⓐ, comme montré à la Fig. 18.
6) Déplacer la base de tête A/C (A/C HEAD BASE) en dépla1ant le tournevis dans le sens de la flêche comme montré à la Fig. 4-18 afin d'obtenir une sortie RF maximale, puis serrer la vis ©.

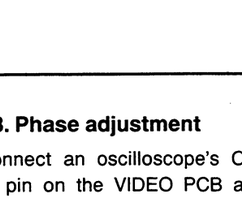


Fig. 4-16

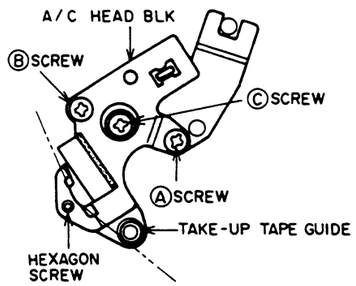


Fig. 4-17

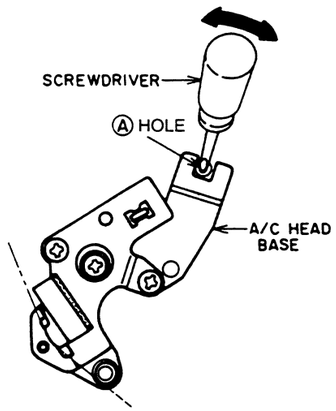


Fig. 4-18

V. ELECTRICAL ADJUSTMENT

Precautionary items prior to adjustments
1. The color bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV.)

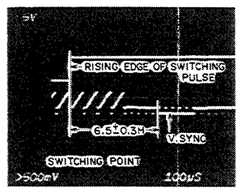
Required following test tapes.

Test tape	Parts No.
TF-527BL	AT-711880
TF-512CB	AT-750799
TF-530RFS	AT-751775

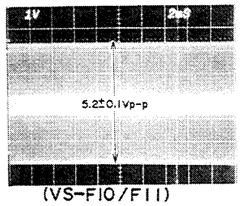
2 AUDIO PB LEVEL
1. "PB", test tape TF-527BL
2. TP22 (S)/TP23 (SK) (A.OUT) & VR301 (PB LEVEL)
3. • Connect an AC milli-voltmeter to TP22 (S) or TP23 (SK).
   *-5 +0 -1 dBs

3 AUDIO REC BIAS
1. "REC", No signal input
2. P306 ① pin, ② pin & VR302 (REC BIAS)
3. • Connect an AC milli-voltmeter between P306 ① pin (GND side) and ② pin. (Do not connect the AC milli-voltmeter's ground to the VCR's ground)
   *Adjust VR302 so that the reading on the AC voltmeter becomes 2.4 ± 0.1 mV

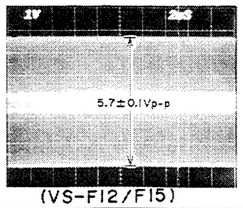
1 PB SWITCHING POINT
1. "PB", tape TF-530RFS
2. TP 21 (V.out), JW71 (SWP) & VR401 (SW.POINT)
3. • Connect an oscilloscope's CH-1 to TP21 and CH-2 to JW71 (SWP) for triggering.
   *Adjust VR401 so that the switching point is positioned 6.5 ± 0.3 H from the leading edge of V-SYNC as shown.



10 VIDEO REC CURRENT
1. "REC", SECAM color bar signal
2. TP3 (REC CURR), JW71 (SWP) & VR1 (REC Y), VR2 (REC Y)
3. • Connect an oscilloscope's CH-1 to TP3 and CH-2 to JW71 for triggering.
   *Adjust VR1 (VS-F10S/F11S only) so that the REC level is 5.2 ± 0.1 Vp-p as shown.
   *Adjust VR2 (except VS-F10S/F11S) so that the REC level is 5.7 ± 0.1 Vp-p as shown.

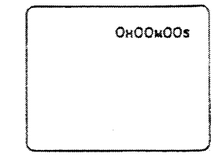


(VS-F10/F11)

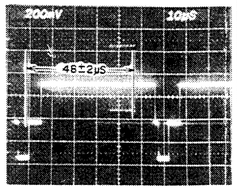


(VS-F12/F15)

13 CHARACTOR POSITION
1. "E-E" (STOP mode), No signal input
2. TP21 (V.out), VR101 (IMS)
3. • Connect an oscilloscope to TP21 (V. out) and press "AFFICHAGE" button on the remote control unit to display elapsed tape counter.
   *Adjust VR101 so that the right end of the IMS signal becomes 48 ± 2 µs from the trailing edge of the H-SYNC as shown.



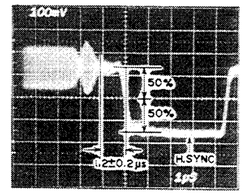
ON THE SCREEN



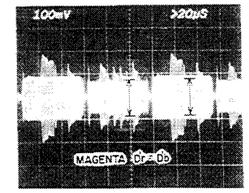
STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ part
3.	REMARKS (•) & RESULT (*)

ADJ. part
Test point

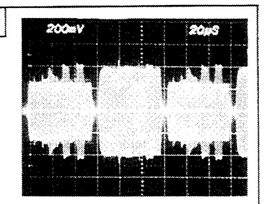
9 NOISE GATE
1. "PB", test tape TF-512CB
2. TP21 (V.out), VR701 (NOISE GATE)
3. • Connect an oscilloscope's CH-1 to TP21 (V.out) and CH-2 to JW175 (C.SYNC) for triggering.
   *Adjust VR701 so that the noise gate pulse width is 1.2 µs from center of the leading edge of the H.SYNC as shown.



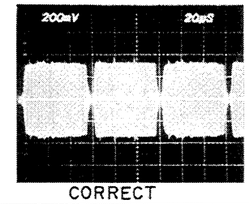
7 EQUALIZER LEVEL
1. "REC", SECAM color bar signal
2. IC701 ④ pin & VL702 (EQ LEVEL)
3. • Connect an oscilloscope to IC701 ④ pin.
   *Adjust VL702 so that magenta part (Dr and Db) becomes the same level as shown.



8 BELL FILTER
1. "REC", SECAM color bar signal
2. IC701 ㉗ pin & VL701 (BELL FILTER)
3. • Connect an oscilloscope to IC701 ㉗ pin (4.28M EQ).
   *Adjust VL701 so that waveform becomes flat as shown.

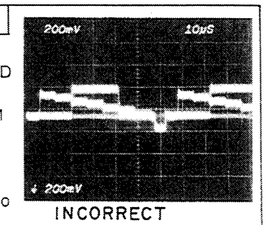


INCORRECT

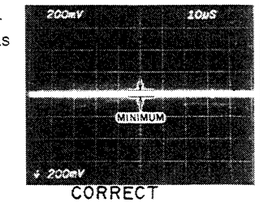


CORRECT

11 CCD
1. "PB", test tape TF-512CB
2. IC601 ⑱ pin, ⑲ pin & VR605 (CCD LEVEL)
3. • Connect an oscilloscope's CH-1 to IC601 ⑲ pin and CH-2 to ⑱ pin.
   Set the oscilloscope to "ADD" mode and set polarity of CH-2 to "INVERTED".
   *Adjust VR605 so that the waveform level becomes minimum as shown.

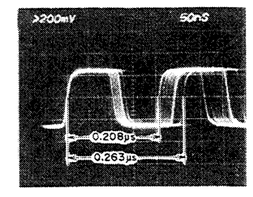


INCORRECT

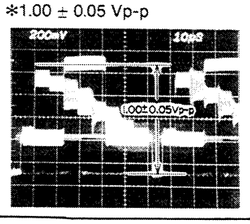


CORRECT

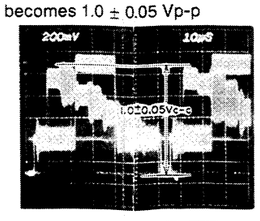
6 FREQUENCY & DEVIATION
1. "REC", SECAM color bar signal
2. JW174 (REC Y) & VR603 (FREQ), VR604 (DEV)
3. • Connect an oscilloscope to JW174.
   *Set the FREQUENCY TO 0.263 µs (3.8 MHz) by VR603 and DEVIATION to 0.208 µs (4.8 MHz) by VR604 as shown.



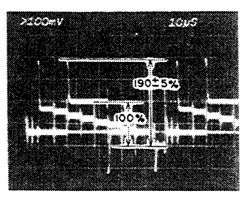
4 VIDEO E-E LEVEL
1. "E-E" (STOP mode), SECAM color bar signal
2. TP21 (V.out) & VR602 (E-E LEVEL)
3. • Connect an oscilloscope to TP21.
   *1.00 ± 0.05 Vp-p

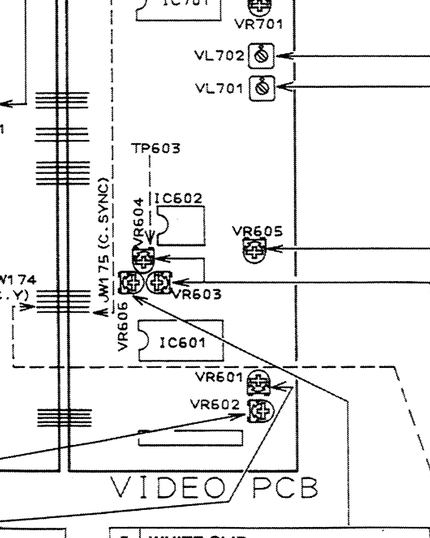


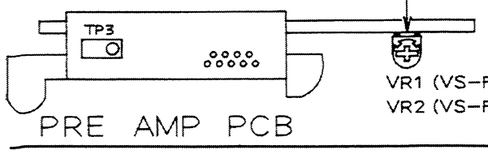
12 PB LEVEL
1. "REC" → "PB", SECAM color bar signal
2. TP21 (V.out) & VR501 (PB LEVEL)
3. • Connect an oscilloscope to TP21.
   • Make some recording on the tape then play it back
   *Adjust VR601 so that PB level becomes 1.0 ± 0.05 Vp-p



5 WHITE CLIP
1. "E-E" (STOP mode), SECAM color bar signal
2. TP603 (VR604) & VR606 (W.CLIP)
3. • Connect an oscilloscope to TP603.
   *Adjust VR606 so that the white clip level becomes 190 ± 5% as shown.







VR1 (VS-F10S/F11S)
VR2 (VS-F12S/F12SK/F15S)

V. REGLAGES ELECTRIQUES

Mesures de précautions à prendre avant d'effectuer ces réglages.
1. La sortie du générateur de barres de couleur doit être de 1,0 Vp-p.
2. La borne de sortie vidéo doit être terminée par 75 ohms (connecter à une charge fictive ou à une entrée TV de 75 ohms)

Bandes d'essai nécessaires

Bande d'essai	No. de pièces
TF-527BL	AT-711880
TF-512CB	AT-750799
TF-530RFS	AT-751775

ETAPE	ELEMENT DE LA PROCEDURE DE REGLAGE
1.	MODE/SIGNAL D'ENTREE et BANDE D'ESSAI
2.	POINT D'ESSAI et PIECE DE REGLAGE
3.	REMARQUES (•) et RESULTAT (*)

→ à pieces de reglage

⇢ à point d'essai

2 NIVEAU DE LECTURE AUDIO

1. Lecture (PB), bande TF-527BL
2. TP22 (S)/TP23 (SK) (A.Out) et VR301 (Niveau de lecture)
3. • Connecteur un milli-voltmètre CA à TP22 (S) ou TP23 (SK).
   *-5 $^{+0}_{-1}$ dBs

3 POLARISATION D'ENREGISTREMENT AUDIO

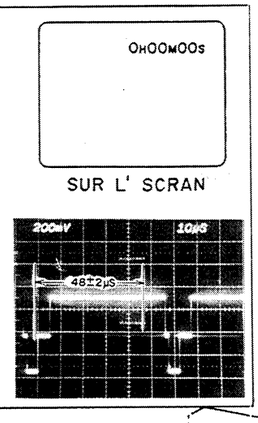
1. Enregistrement (REC), pas d'entrée de signaux
2. Broche (1), broche (2) de P306 et VR302 (Polarisation d'enregistrement)
3. • Connecter un milli-voltmètre AC entre la broche (1) (côté Terre) et la broiche (2) de P306.
   *Régler VR302 de manière que la lecture du voiltmètre AC devienne 2,4 ± 0,1 mV

1 POINT DE COMMUTATION DE LECTURE

1. Lecture (PB), bande TF-530RFS
2. TP21 (V. out), JW71 (SWP) et VR401 (Point SW.)
3. • Connecter CH-1 d'un oscilloscope à TP21 et CH-2 à JW71 (SWP) pour le déclenchement.
   *Régler VR401 de manière que le point de commutation soit positionné à 6,5 ± 0,3 H du bord d'attaque de V-SYNC comme illustré.

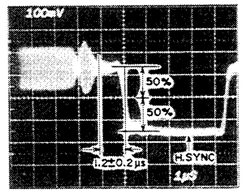
13 POSITION DE CARACTERE

1. Mode arrêt (E-E), pas de signal d'entrée
2. TP21 (V. Out) et VR101 (IMS)
3. • Connecter un oscilloscope à TP21 (V. Out) et appuyer sur la touche "AFFICHAGE" de la télécommande pour faire apparaître le compteur de temps écoulé.
   *Régler VR101 de manière que l'extrémité droite du signal IMS soit à 48 ± 2 µs du bord de fuite de H-SYNC, comme illustré.



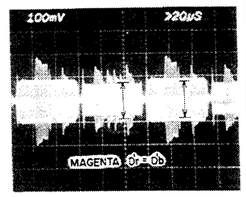
9 PORTE DE BRUIT

1. Lecture (PB), bande d'essai TF-512CB
2. TP21 (V.Out)m VR701 (Porte de bruit)
3. • Connecter CH-1 d'un oscilloscope à TP21 et CH-2 à JW175 (C. SYNC) pour le déclenchement.
   *Régler VR701 de manière que la largeur d'impulsion de porte de bruit soit 1,2 µs à partir du centre du bord d'attaque de H.SYNC comme illustré.



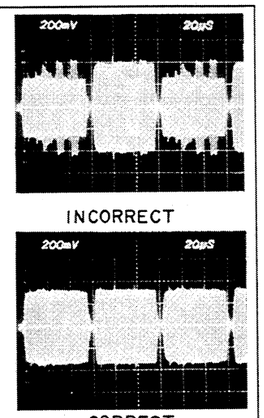
7 NIVEAU D'EGALISEUR

1. Enregistrement (REC), signal de barres couleur SECAM
2. Eroche (4) de IC701 et VL702 (Niveau EQ)
3. • Connecter un oscilloscope à la broche (4) de IC701.
   *Régler VL702 de manière que la partie de couleur magenta (Dr ou Db) soit au niveau indiqué.



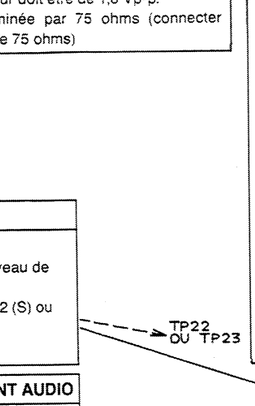
8 FILTRE CLOCHE

1. Enregistrement (REC), signal de barres couleur SECAM
2. Eroche (27) de IC701 et VL701 (Filtre cloche)
3. • Connecter un oscilloscope à la broche (27) de IC701 (EQ 4,28M)
   *Régler VL701 de manière que la forme d'onde devienne plate comme montré.



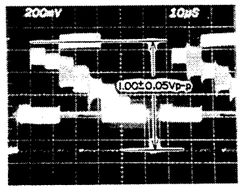
10 INTENSITE D'ENREGISTREMENT VIDEO

1. Enregistrement (REC), signal de barres couleur SECAM
2. TP3 (Intensité REC), JW71 (SWP) et VR1 (REC Y), VR2 (REC Y)
3. • Connecter CH-1 d'un oscilloscope à TP3 et CH-2 à JW71 pour le déclenchement.
   *Régler VR1 (VS-F10S/F11S uniquement) de manière que le niveau d'enregistrement soit 5,2 ± 0,1 Vp-p, comme montré.
   *Régler VR2 (sauf VS-F10S/F11S) de manière que le niveau d'enregistrement soit 5,7 ± 0,1 Vp-p, comme montré.



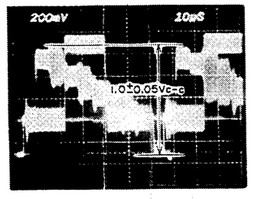
4 NIVEAU E-E VIDEO

1. Mode arrêt (E-E), signal de barres couleur SECAM
2. TP21 (V.Out) et VR602 (Niveau E-E)
3. • Connecter un oscilloscope à TP21
   *1,00 ± 0,05 Vp-p



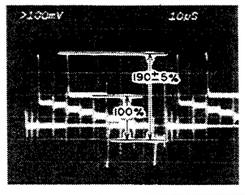
12 NIVEAU DE LECTURE

1. Enregistrement (REC) → Lecture (PB), signal de barres couleur SECAM
2. TP21 (V. Out) et VR601 (Niveau de lecture)
3. • Connecter un oscilloscope à TP21.
   • Effectuer un enregistrement et le reproduire.
   *Régler VR601 de manière que le niveau de lecture soit 1,0 ± 0,05 Vp-p.



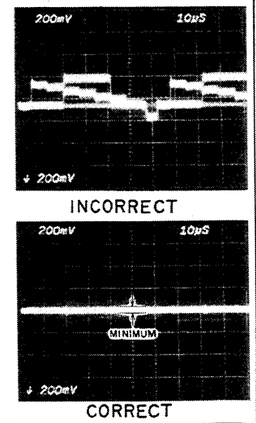
5 ECRETAGE DES BLANCS

1. Mode arrêt (E-E), signal de barres couleur SECAM
2. TP603 (VR604) et VR605 (Ecrêtage des blancs)
3. • Connecter un oscilloscope a TP603
   *Régler VR606 de manière que le niveau d'écrêtage des blancs devienne 190 ± 5% comme illustré.



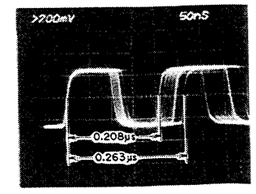
11 CCD

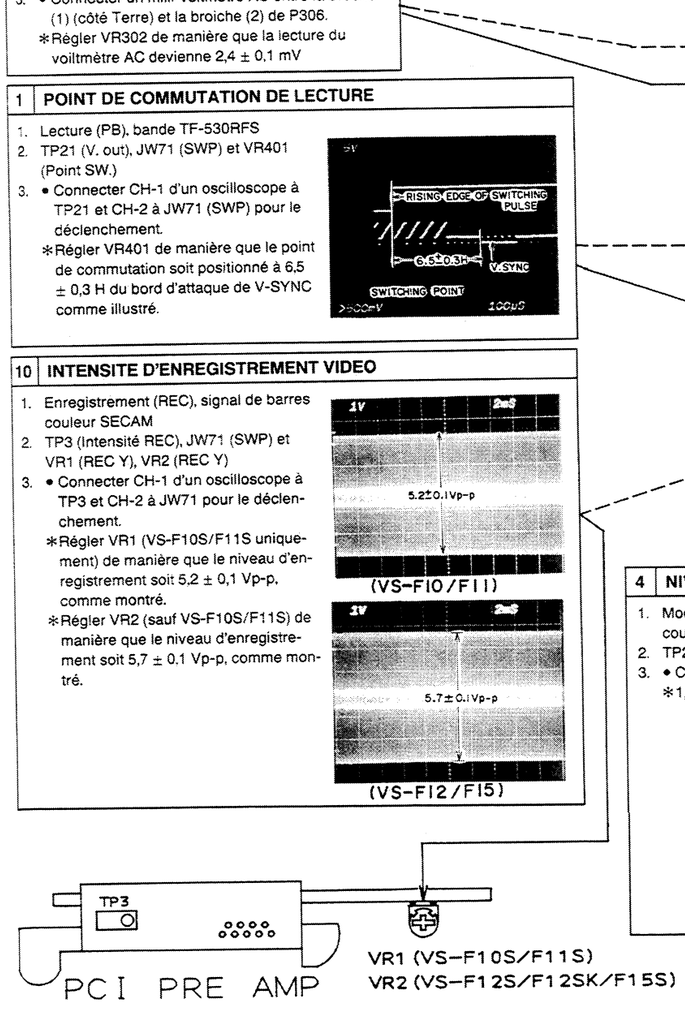
1. Lecture (PB), bande d'essai TF-512CB
2. Broche (18) et broche (19) de IC601 et VR605 (Niveau CCD)
3. • Connecter CH-1 d'un oscilloscope à la broche (19) et CH-2 à la broche (18) de IC601.
   • Mettre l'oscilloscope en mode "ADD" et régler la polarité de CH-2 sur inversée (INVERTED).
   *Régler VR605 de manière que le niveau de forme d'onde devienne minimum, comme montré.



6 FREQUENCE ET DEVIATION

1. Enregistrement (REC), signal de barres couleur SECAM
2. JW174 (REC Y) et VR603 (FREQ), VR604(DEV)
3. • Connecter un oscilloscope à JW174.
   *Régler la fréquence à 0,263 µs (3,8 MHz) à l'aide de VR603 et la déviation à 0,208 µs (4,8 MHz) à l'aide de VR604, comme illustré.





V. REGLAGES ELECTRIQUES

Mesures de précautions à prendre avant d'effectuer ces réglages.
1. La sortie du générateur de barres de couleur doit être de 1,0 Vp-p.
2. La borne de sortie vidéo doit être terminée par 75 ohms (connecter à une charge fictive ou à une entrée TV de 75 ohms)

Bandes d'essai nécessaires

Bande d'essai	No. de pièces
TF-527BL	AT-711880
TF-512CB	AT-750799
TF-530RFS	AT-751775

ETAPE	ELEMENT DE LA PROCEDURE DE REGLAGE
1.	MODE/SIGNAL D'ENTREE et BANDE D'ESSAI
2.	POINT D'ESSAI et PIECE DE REGLAGE
3.	REMARQUES (•) et RESULTAT (*)

→ à pieces de reglage

→ à point d'essai

2 NIVEAU DE LECTURE AUDIO

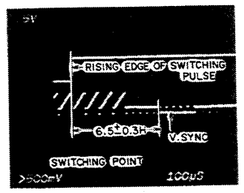
1. Lecture (PB), bande TF-527BL
2. TP22 (S)/TP23 (SK) (A.Out) et VR301 (Niveau de lecture)
3. • Connecteur un milli-voltmètre CA à TP22 (S) ou TP23 (SK).
   *-5 $^{0}_{-1}$ dBs

3 POLARISATION D'ENREGISTREMENT AUDIO

1. Enregistrement (REC), pas d'entrée de signaux
2. Broche (1), broche (2) de P306 et VR302 (Polarisation d'enregistrement)
3. • Connecter un milli-voltmètre AC entre la broche (1) (côté Terre) et la broiche (2) de P306.
   *Régler VR302 de manière que la lecture du voiltmètre AC devienne 2,4 ± 0,1 mV

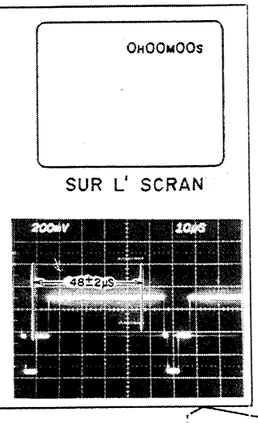
1 POINT DE COMMUTATION DE LECTURE

1. Lecture (PB), bande TF-530RFS
2. TP21 (V. out), JW71 (SWP) et VR401 (Point SW.)
3. • Connecter CH-1 d'un oscilloscope à TP21 et CH-2 à JW71 (SWP) pour le déclenchement.
   *Régler VR401 de manière que le point de commutation soit positionné à 6,5 ± 0,3 H du bord d'attaque de V-SYNC comme illustré.



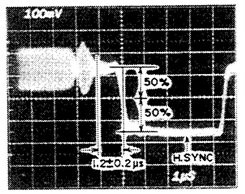
13 POSITION DE CARACTERE

1. Mode arrêt (E-E), pas de signal d'entrée
2. TP21 (V. Out) et VR101 (IMS)
3. • Connecter un oscilloscope à TP21 (V. Out) et appuyer sur la touche "AFFICHAGE" de la télécommande pour faire apparaître le compteur de temps écoulé.
   *Régler VR101 de manière que l'extrémité droite du signal IMS soit à 48 ± 2 µs du bord de fuite de H-SYNC, comme illustré.



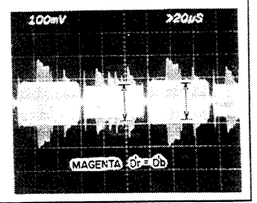
9 PORTE DE BRUIT

1. Lecture (PB), bande d'essai TF-512CB
2. TP21 (V.Out)m VR701 (Porte de bruit)
3. • Connecter CH-1 d'un oscilloscope à TP21 et CH-2 à JW175 (C. SYNC) pour le déclenchement.
   *Régler VR701 de manière que la largeur d'impulsion de porte de bruit soit 1,2 µs à partir du centre du bord d'attaque de H.SYNC comme illustré.



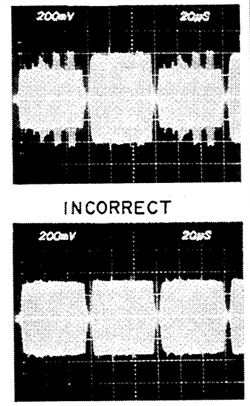
7 NIVEAU D'EGALISEUR

1. Enregistrement (REC), signal de barres couleur SECAM
2. Broche (4) de IC701 et VL702 (Niveau EQ)
3. • Connecter un oscilloscope à la broche (4) de IC701.
   *Régler VL702 de manière que la partie de couleur magenta (Dr ou Db) soit au niveau indiqué.



8 FILTRE CLOCHE

1. Enregistrement (REC), signal de barres couleur SECAM
2. Broche (27) de IC701 et VL701 (Filtre cloche)
3. • Connecter un oscilloscope à la broche (27) de IC701 (EQ 4,28M)
   *Régler VL701 de manière que la forme d'onde devienne plate comme montré.

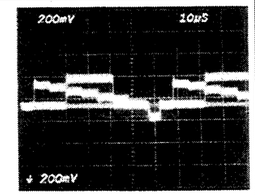


INCORRECT

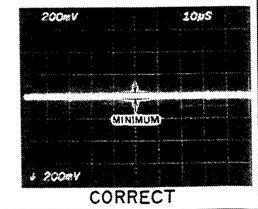
CORRECT

11 CCD

1. Lecture (PB), bande d'essai TF-512CB
2. Broche (18) et broche (19) de IC601 et VR605 (Niveau CCD)
3. • Connecter CH-1 d'un oscilloscope à la broche (19) et CH-2 à la broche (18) de IC601.
   • Mettre l'oscilloscope en mode "ADD" et régler la polarité de CH-2 sur inversée (INVERTED).
   *Régler VR605 de manière que le niveau de forme d'onde devienne minimum, comme montré.



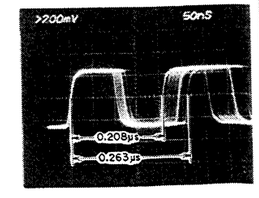
INCORRECT



CORRECT

6 FREQUENCE ET DEVIATION

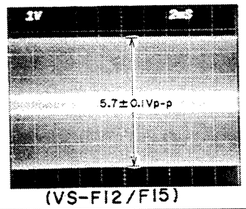
1. Enregistrement (REC), signal de barres couleur SECAM
2. JW174 (REC Y) et VR603 (FREQ), VR604(DEV)
3. • Connecter un oscilloscope à JW174.
   *Régler la fréquence à 0,263 µs (3,8 MHz) à l'aide de VR603 et la déviation à 0,208 µs (4,8 MHz) à l'aide de VR604, comme illustré.



10 INTENSITE D'ENREGISTREMENT VIDEO

1. Enregistrement (REC), signal de barres couleur SECAM
2. TP3 (Intensité REC), JW71 (SWP) et VR1 (REC Y), VR2 (REC Y)
3. • Connecter CH-1 d'un oscilloscope à TP3 et CH-2 à JW71 pour le déclenchement.
   *Régler VR1 (VS-F10S/F11S uniquement) de manière que le niveau d'enregistrement soit 5,2 ± 0,1 Vp-p, comme montré.
   *Régler VR2 (sauf VS-F10S/F11S) de manière que le niveau d'enregistrement soit 5,7 ± 0,1 Vp-p, comme montré.

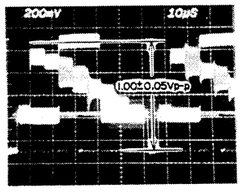
(VS-F10/F11)



(VS-F12/F15)

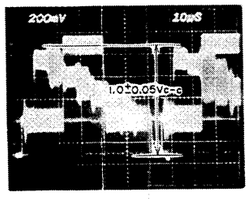
4 NIVEAU E-E VIDEO

1. Mode arrêt (E-E), signal de barres couleur SECAM
2. TP21 (V.Out) et VR602 (Niveau E-E)
3. • Connecter un oscilloscope à TP21
   *1,00 ± 0,05 Vp-p



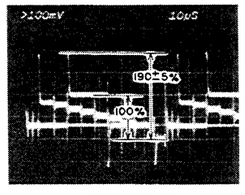
12 NIVEAU DE LECTURE

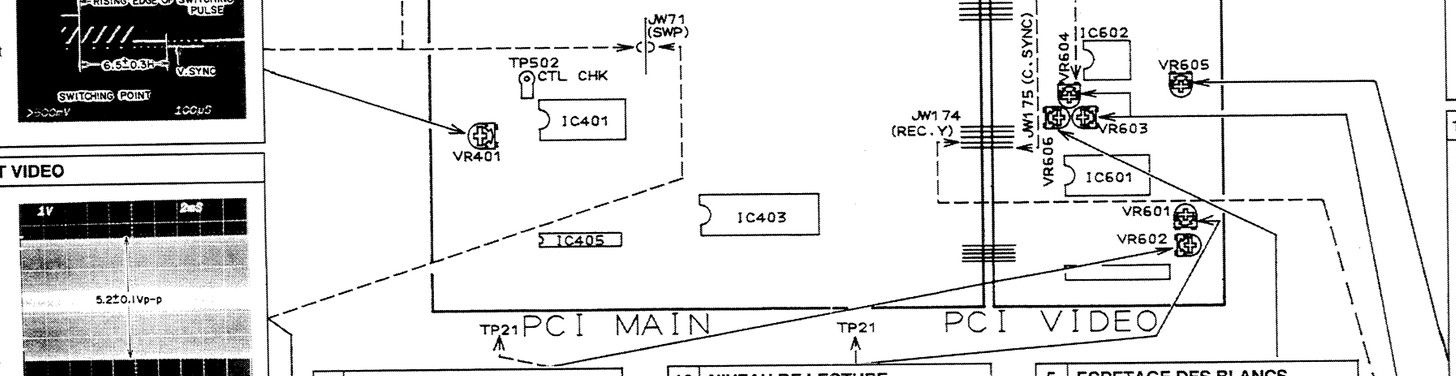
1. Enregistrement (REC) → Lecture (PB), signal de barres couleur SECAM
2. TP21 (V. Out) et VR601 (Niveau de lecture)
3. • Connecter un oscilloscope à TP21.
   • Effectuer un enregistrement et le reproduire.
   *Régler VR601 de manière que le niveau de lecture soit 1,0 ± 0,05 Vp-p.



5 ECRETAGE DES BLANCS

1. Mode arrêt (E-E), signal de barres couleur SECAM
2. TP603 (VR604) et VR605 (Ecrêtage des blancs)
3. • Connecter un oscilloscope a TP603
   *Régler VR606 de manière que le niveau d'écrêtage des blancs devienne 190 ± 5% comme illustré.





VI. PARTS LIST

ATTENTION

1. **When placing an order for parts, be sure to list Part No., Model No. and the description of eachpart. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.**
2. **Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.**
3. **Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.**

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

Ref.No.	Part No.	Description
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20×03STL CMT
4	ZS-536488	BID20×08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individ ual parts index number in that figure.

b) PC Board

6. MAIN PC BOARD

Ref.No.	Part No.	Description
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A] : AAL (U.S.A) [S] : SAA (Australia)
[B] : BEAB (England) [U] : U/T (Universa Area)
[C] : CSA (Canada)
[E] : CEE (Europe) [V] : VDE (W. Germany)
[J] : JPN (Janan) [Y] : Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No.listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.

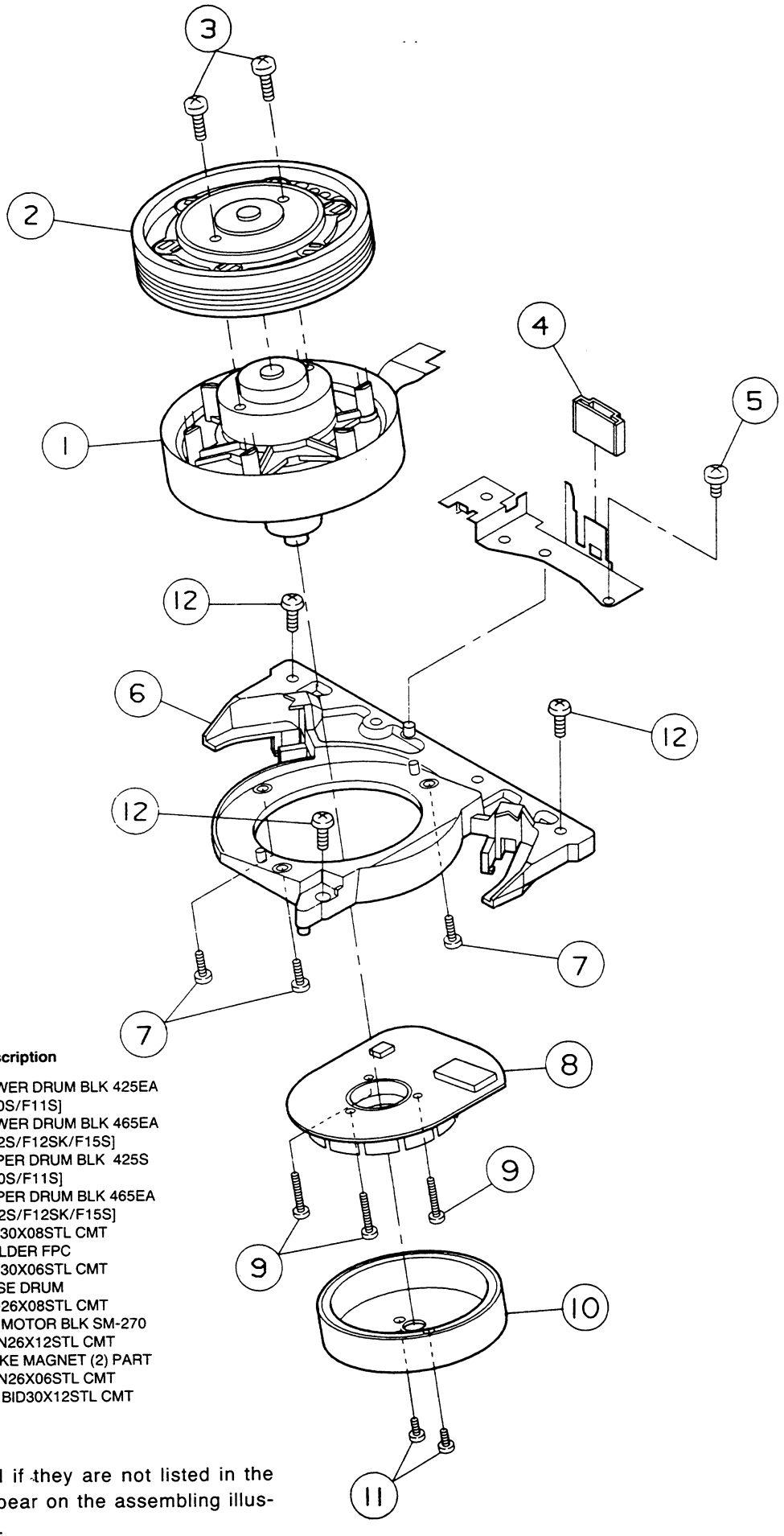
1.RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref.No.	Part No.	Description
1	AV-B1012B010B	REMOCON BLK RC-V10A-FB [F10S/F12S/F12SK]
2	AV-B1014B015B	REMOCON BLK RC-V16A-FB [F11S/F15S]
3	BB-V1102A020A	MECHA DECK BLK 425EA
4	BL-V1102A140A	ARM LOADING BLK 425EA
5	BL-387458J2	CAPSTAN BRAKE PART
6	BL-V1102A050A	TENSION ARM BLK 425EA
7	BM-386236J	MOTOR DFX-67B3VWA1
8	BM-387503J	MOTOR PART
9	BM-M3227A020A	PC MOTOR BLK SM-270
10	*BT-391084J1	TRANS POW V1102 EO [F12SK]
11	*BT-391110J	TRANS POW V1105 EOG [F10S/F11S/F12S/F15S]
12	BV-V1102A150A	CASSETTE LOAD BLK 425EA
13	BV-V1102A070A	LEADER S BLK 425EA
14	BV-V1102A080A	LEADER T BLK 425EA
15	BV-V1102A410A	LOWER DRUM BLK 425EA [F10S/F11S]
16	BV-V1102A410B	LOWER DRUM BLK 465EA [F12S/F12SK/F15S]
17	BV-390155J1	RF CONVERTER MDLK2R116B SK [SK]
18	BV-390153J	RF CONVERTER MDLK6F063A S [S]
19	BV-V1102A420B	UPPER DRUM BLK 425S [F10S/F11S]
20	BV-V1102A420C	UPPER DRUM BLK 465EA [F12S/F12SK/F15S]
21	ED-390011J	D LED GL451 INFRARED [D1]
22	ED-390012J	D LED GL4800 INFRARED [D2]
23	ED-384628J	D LED GL5HY47-C YELLOW [QUICK START]
24	ED-395865J	D LED GL527F INFRARED
25	ED-376111	D LED SE303AC INFRARED
26	ED-392779J	D SCHOTTKY 1SS198 T26
27	*ED-379298	D SILICON DBA20B 100/2.0A
28	ED-307572	D SILICON H 1SS131
29	ED-366684	D SILICON H 1SS136 F05
30	ED-624903	D SILICON H 1S2473
31	*ED-511907	D SILICON 1N4002 100/1.0A
32	*ED-392651J	D SILICON 1N5401 F15 100/3.0A
33	ED-389840J	D SILICON 1SR139-100HS F10
34	ED-717990	D SILICON 1SS181 [S]
35	ED-387766J	D ZENER H HZS12A2L F05
36	ED-391103J	D ZENER H HZS12B2
37	ED-389932J	D ZENER H HZS2C3 T26
38	ED-388387J	D ZENER H HZS30-2L T26
39	ED-388359J	D ZENER H HZS4B2
40	ED-389418J	D ZENER H HZS5.1B3S T26
41	ED-389688J	D ZENER H HZS5B2
42	ED-387763J	D ZENER H HZS7B3L F05
43	ED-388368J	D ZENER H HZS9B3L F05
44	ED-387765J	D ZENER H HZS9C1L F05
45	ED-343996	D ZENER H HZ12 B1
46	ED-322046	D ZENER H HZ18 1
47	EE-375426	TV TUNER TEMQ1-009A [S]
48	EE-387601J	TV TUNER TERR1-001A SK [SK]
49	EH-729780J	FILTER CE SAF32.7MZ81Z [S]
50	EH-376338	FILTER CE TPS6.5MB [S]
51	EH-378927J	FILTER LC BP BPF-K5-MS(5969)
52	EH-367043	FILTER LC BP H289BNKN-7235LHD
53	EH-389200J	FILTER LC BP SBP-4425-107M
54	EH-364066	FILTER LC LP H322LWQ-1166MAD
55	EH-368821	FILTER LC LP MYV-23R
56	EH-711868	FILTER SAW SAF39.2MB51P [S]
57	EI-389467J	IC AN3247NK
58	EI-373981J1	IC BA10393N
59	EI-373980	IC BA15218N
60	EI-353421	IC BA6229
61	EI-372243	IC BA7107S
62	EI-387586J	IC BA7244BS
63	EI-387598J	IC BA7252S
64	EI-388360J	IC BA7765AS
65	EI-380199J	IC BU4066BL
66	EI-390053J	IC LA7910
67	EI-389622J	IC L5631
68	EI-373966	IC MSM6965-3RS
69	EI-388996J	IC M50455-142SP
70	EI-727766J	IC M51848L [S]
71	EI-393324J	IC M5218AL
72	EI-394613J	IC S-8052ALO-LG-T1
73	EI-373955	IC S-8053ALR
74	EI-389483J	IC SX2777CS
75	EI-715731	IC TA7718P [S]
76	EI-200573	IC TC4053BP [S]
77	EI-376112	IC UPD6122G
78	EI-389475J	IC UPD75108CW-A86 SXSYP3
79	EI-395088J	IC UPD75216A SX2OPS2-A81
80	EI-395096J	IC UPD75306GF HFXREM5-120
81	EI-394467J	IC X24C01P
82	EI-394614J	OSC CE CSA2.20MG 2.200MHZ
83	EI-373957J1	OSC CE CST4.19MGW 4.194MHZ
84	EI-385940J	OSC CE CST4.19MGWTF 4.194MHZ
85	EI-390687J	OSC CE CSU455PL 455KHZ
86	EI-368825	OSC X"TAL MX-38T 32.768KHZ
87	EI-309878	OSC X"TAL 4.433619MHZ
88	EI-393335J	TR CHIP 2SC3938-TW R,S
89	EM-387626J	IND FL FV375G CHARACTER
90	EM-390787J	IND LCD LF5296G FRENCH
91	EO-388362J	COIL OSC 1 V1102
92	*ER-393220J	R FUSE H S10 RF25S 1/4W 220J [S]
93	*ER-393219J	R FUSE H S10 RF25S 1/4W 4R7J
94	*ER-392819J	R FUSE H S10 RF25SC 1/4W R10K
95	*ER-392807J	R FUSE H S10 RF25SC 1/6W R12K
96	*ER-391043J	R FUSE H S10 RF25SC 1/6W R47K [S]
97	*ER-389985J	R FUSE H S10 RF25SC 1/6W R56K
98	*ER-391044J	R FUSE H S10 RF25SC 1/6W R68K
99	*ER-400669J	R FUSE V T05 ERD2FC 1/4W 1200G
100	*ER-336756	R OMF H FS 1W R47J [SK]
101	ER-389875J	R OMF H S10 FS 1/2W R68J
102	ES-373099	SW LEAF MTS10110MPC1
103	ES-387465J	SW MODE SELECT MMS00070ZLBO
104	ES-373973	SW SLIDE HSW0810-010 1-01-02S
105	ES-394485J	SW SLIDE SSSS21 1-01-03N
106	ES-349474	SW TACT SKHHAM004A [RESET]
107	ET-381637J2	DETECTOR GP1U521X
108	ET-713614	TR CHIP 2SA1235 E,F
109	ET-725820J	TR CHIP 2SC2735J
110	ET-713615	TR CHIP 2SC3052 E,F [S]
111	ET-354415	TR DTA144ES
112	ET-353897	TR DTC114ES
113	ET-364060	TR DTC143ES
114	ET-354414	TR DTC144ES
115	ET-361490	TR PHOTO PN268 R,S [PTR1]
116	ET-390010J	TR PHOTO PT4800 [PTR2]
117	ET-390009J	TR PHOTO PT493F [PTR4]
118	ET-364064	TR UN4119
119	ET-353899	TR 2SA1317 S,T,U
120	ET-388338J	TR 2SB1425 S,E
121	ET-375777	TR 2SC2926S P,Q
122	ET-397160J	TR 2SC3330 R,S,T,U,V
123	ET-366168	TR 2SD1292 Q,R
124	ET-360695	TR 2SD1302 S,T
125	ET-380685J	TR 2SD1761 E,F,G

Ref.No.	Part No.	Description
126	ET-373025	TR 2SD1944 J1,J2,K
127	ET-385916J	TR 2SD2159 U,V F05 [S]
128	HE-361456	HEAD E HVFMD0015B
129	HR-390015J	HEAD COMBO HVMZA1045C
130	MA-387474J	BASE DRUM
131	MB-387289J	BELT CAPSTAN
132	MI-387294J	IDLLER PART
133	ML-391745J2	ARM DAMPER
134	ML-387350J1	ARM LID OPENER
135	ML-387423J	ARM LOADING BRAKE
136	ML-387277J3	ARM REVIEW PART
137	ML-387402J	LEVER TRIGGER
138	ML-387316J	MAIN BRAKE(S) PART
139	ML-387318J	MAIN BRAKE(T) PART
140	ML-387321J	REVIEW BRAKE PART
141	ML-387324J	SLIDER BRAKE PART
142	ML-387327J	SLIDER TRIGGER
143	MR-387406J	HOLDER THRUST WORM
144	MR-391968J	PULLEY TRIGGER(2)
145	MR-387286J1	ROLLER IMPEDANCE
146	MT-390954J1	DISK (2)PART
147	MZ-387298J2	DISK CLUTCH PART
148	MZ-387331J	GEAR CAM SLIDER
149	MZ-387335J	GEAR EJECT
150	MZ-387333J	GEAR FRONT LOADING
151	MZ-V1102A090A	GEAR TOGGLE (S) BLK 425EA
152	MZ-V1102A100A	GEAR TOGGLE (T) BLK 425EA
153	MZ-387330J	GEAR WORM PART
154	MZ-387332J	GEAR WORM WHEEL

HEAD DRUM BLOCK

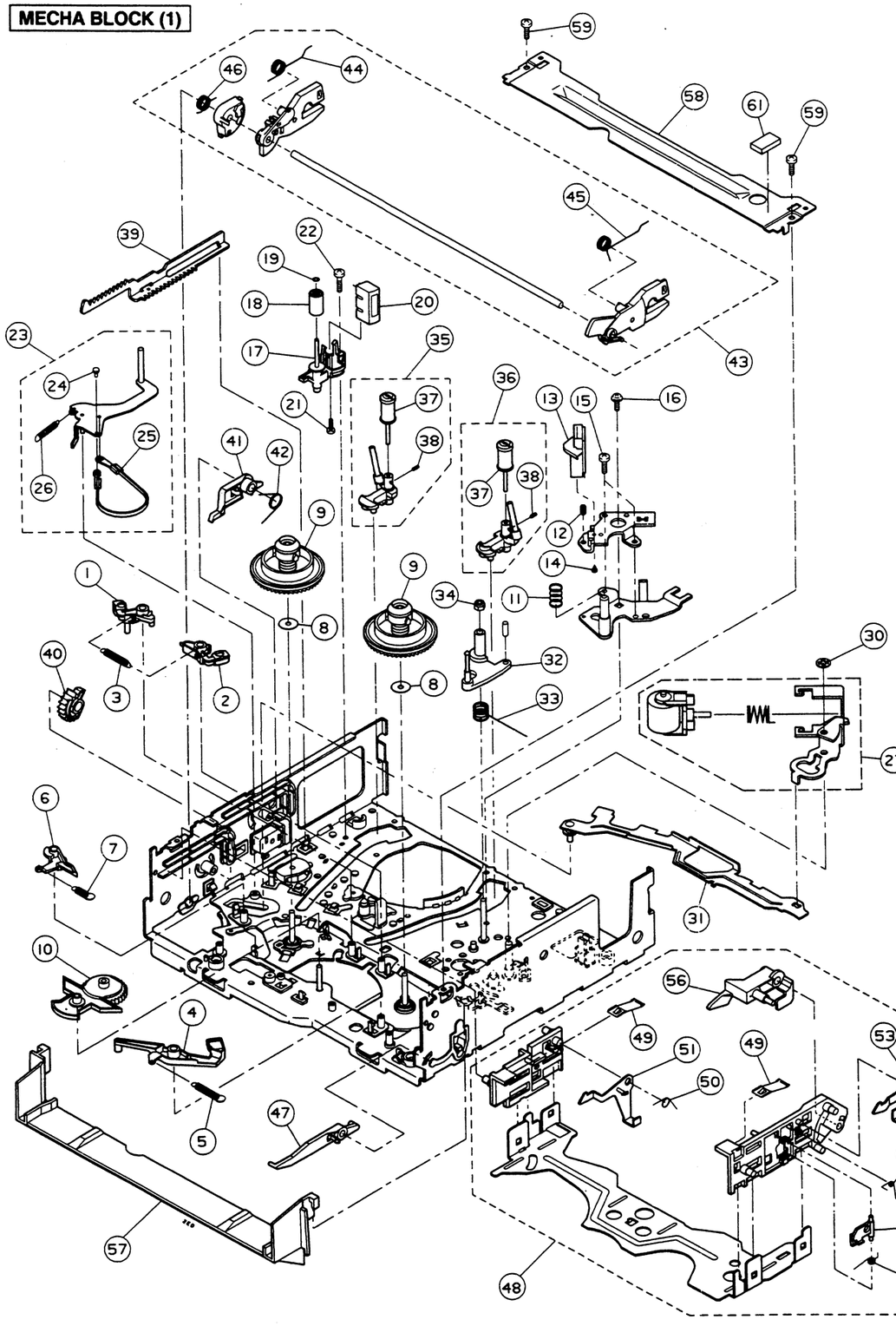


2. HEAD DRUM BLOCK

Ref.No.	Part No.	Description
1A	BV-V1102A410A	LOWER DRUM BLK 425EA [F10S/F11S]
1B	BV-V1102A410B	LOWER DRUM BLK 465EA [F12S/F12SK/F15S]
2A	BV-V1102A420B	UPPER DRUM BLK 425S [F10S/F11S]
2B	BV-V1102A420C	UPPER DRUM BLK 465EA [F12S/F12SK/F15S]
3	ZS-321298	BID30X08STL CMT
4	SZ-387388J	HOLDER FPC
5	ZS-379405	BID30X06STL CMT
6	MA-387474J	BASE DRUM
7	ZS-563444	BID26X08STL CMT
8	BM-M3227A020A	PC MOTOR BLK SM-270
9	ZS-467796	PAN26X12STL CMT
10	BV-393334J1	YOKE MAGNET (2) PART
11	ZS-608220	PAN26X06STL CMT
12	ZS-370047	DT BID30X12STL CMT

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

MECHA BLOCK (1)



3. MECHA BLOCK (1)

Ref.No.	Part No.	Description
1	ML-387316J	MAIN BRAKE(S) PART
2	ML-387318J	MAIN BRAKE(T) PART
3	ZG-387320J	SP PULL MAIN BRAKE
4	ML-387321J	REVIEW BRAKE PART
5	ZG-387323J	SP PULL REVIEW BRAKE
6	ML-387423J	ARM LOADING BRAKE
7	ZG-387467J	SP PULL LOADING BRAKE
8	ZW-389814J	PW31X110X050PSL
9	MT-390954J1	DISK (2)PART
10	MI-387294J	IDLLER PART
11	ZG-387438J	SP PUSH A/C
12	ZG-373900	6SET30X080SCM PKR CP
13	HR-390015J	HEAD COMBO HVMZA1045C
14	ZS-373899	PAN20X2.5STL BDY PS1
15	Z9-321298	BID30X08STL CMT
16	ZS-389853J	DT BID30X06STL CMT C080
17	MZ-387495J2	HOLDER FE HEAD PART
18	MR-387286J1	ROLLER IMPEDANCE
19	ZW-374445	SLIT W17X032X025PSL
20	HE-361456	HEAD E HVFMD0015B
21	ZS-460438	BID20X03STL CMT
22	ZS-370047	DT BID30X12STL CMT
23	BL-V1102A050A	TENSION ARM BLK 425EA
24	SZ-387263J1	HOLDER LEVER TENSION
25	ML-390768J	TENSION BAND PART
26	ZG-387272J	SP PULL TENSION
27	BL-V1102A160A	ARM PINCH ROLLER(2)BLK 425EA
30	ZW-332843	RETAINING RING GRIP 380STL ACP
31	ML-387431J	SLIDER PINCH PART
32	ML-387277J3	ARM REVIEW PART
33	ZG-387282J	SP TORSION REVIEW
34	ZW-350839	N30 NYLON
35	BV-V1102A070A	LEADER S BLK 425EA
36	BV-V1102A080A	LEADER T BLK 425EA
37	VT-387394J1	GUIDE ROLLER D8 PART
38	ZS-374458	6SET20X030SCM PKR FP
39	ML-387428J	SLIDER FRONT LOADING
40	MZ-387335J	GEAR EJECT
41	ML-391745J2	ARM DAMPER
42	ZG-395567J	SP TORSION ARM DAMPER
43	BL-V1102A140A	ARM LOADING BLK 425EA
44	ZG-387417J	SP TORSION LOAD(S)
45	ZG-387418J	SP TORSION LOAD(T)
46	ZG-392831J	SP TORSION JOINT(2)
47	ML-387350J1	ARM LID OPENER
48	BV-V1102A150A	CASSETTE LOAD BLK 425EA
49	ZG-387348J1	SP PLATE HOLDER
50	ZG-387421J	SP TORSION DAMPER(S)
51	ML-387345J	LEVER DAMPER(S)
52	ZG-388290J	SP TORSION DAMPER(T)
53	ML-387346J	LEVER DAMPER(T)
54	ML-387344J	LEVER LOCK RELEASE
55	ZG-387420J	SP TORSION RELEASE
56	ML-387349J	ARM SHUTTER
57	SE-387343J1	GUIDE FRONT
58	MZ-387351J1	PLATE UPPER
59	ZS-364543	DT BID30X06STL CMT
60	BB-V1102A020A	MECHA DECK BLK 425EA
61	SZ-391866J1	CUSHION COVER

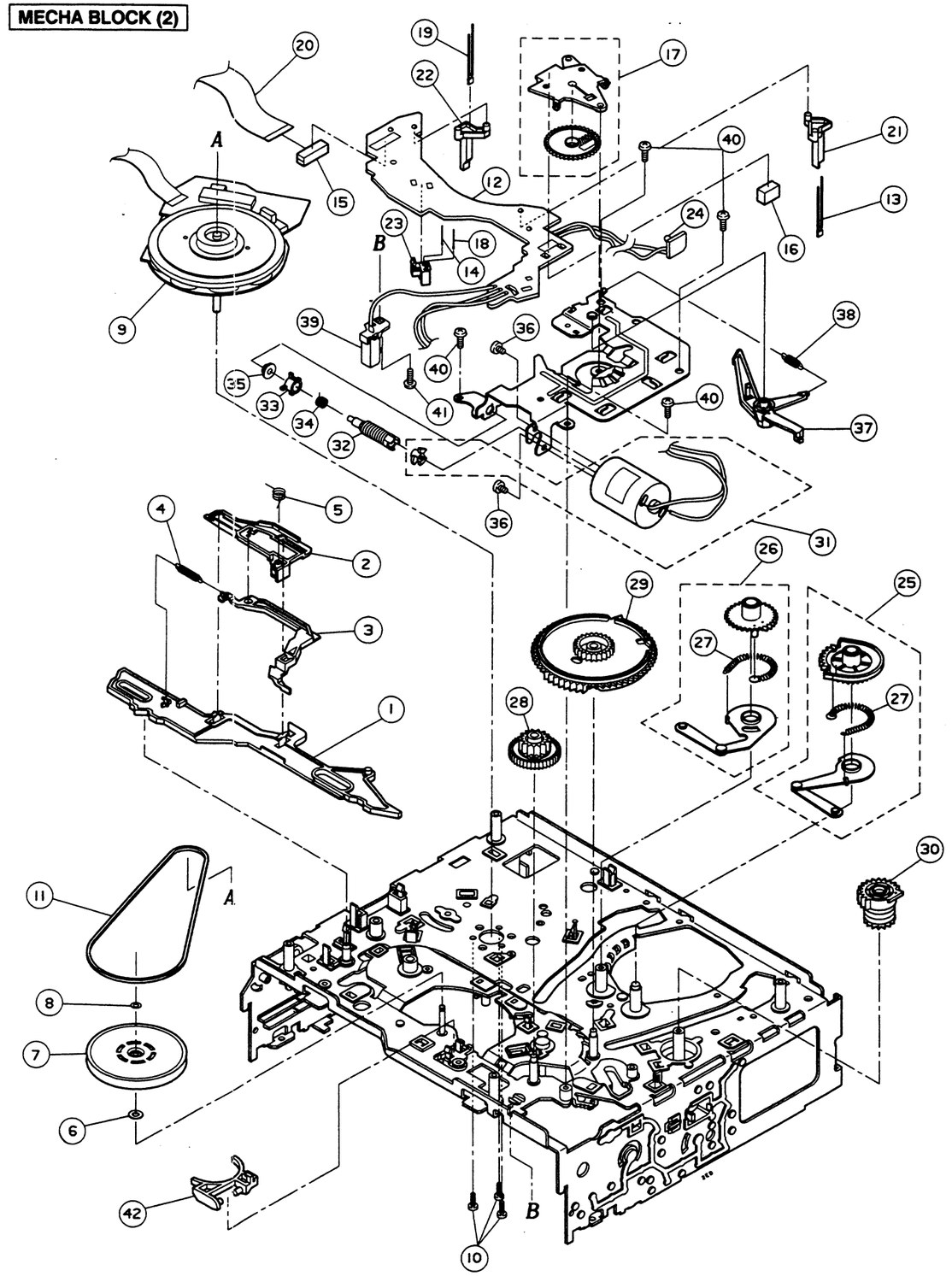
NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

4. MECHA BLOCK (2)

Ref.No.	Part No.	Description
1	ML-387324J	SLIDER BRAKE PART
2	ML-387327J	SLIDER TRIGGER
3	ML-387402J	LEVER TRIGGER
4	ZG-387468J	SP PULL SLIDER
5	ZG-387403J	SP TORSION COUPLING
6	ZW-389923J	PW26X060X050PSL
7	MZ-387298J2	DISK CLUTCH PART
8	ZW-387492J	SLIT W21X040X050PSL
9	BM-386236J	MOTOR DFX-67B3VWA1
10	ZS-365149	PT BID26X06STL CMT
11	MB-387289J	BELT CAPSTAN
12	EA-387496J	PC(#)SENSOR
13	ED-390011J	D LED GL451 INFRARED [D1]
14	ED-390012J	D LED GL4800 INFRARED [D2]
15	EJ-387497J	SOCKET HOUSING 5062-30-10-13
16	EJ-381837J	SOCKET 174074-5 5P
17	ES-387465J	SW MODE SELECT MMS00070ZLBO
18	ET-390010J	TR PHOTO PT4800 [PTR2]
19	ET-390009J	TR PHOTO PT493F [PTR4]
20	EW-389313J	CORD FFC P1.25 L=120 13P
21	MZ-387430J	HOLDER D-LED
22	MZ-387445J	HOLDER S SENSOR
23	MZ-387446J	HOLDER PHOTO SENSOR
24	ET-361490	TR PHOTO PN268 R,S [PTR1]
25	MZ-V1102A090A	GEAR TOGGLE (S) BLK 425EA
26	MZ-V1102A100A	GEAR TOGGLE (T) BLK 425EA
27	ZG-387413J1	SP PULL TOGGLE
28	MZ-387332J	GEAR WORM WHEEL
29	MZ-387331J	GEAR CAM SLIDER
30	MZ-387333J	GEAR FRONT LOADING
31	BM-387503J	MOTOR PART
32	MZ-387330J	GEAR WORM PART
33	MR-391968J	PULLEY TRIGGER(2)
34	ZG-387443J	SP TRIGGER
35	MR-387406J	HOLDER THRUST WORM
36	ZS-425981	BID30X03STL CMT
37	BL-387458J2	CAPSTAN BRAKE PART
38	ZG-387502J	SP PULL CAPSTAN BRAKE
39	ES-373099	SW LEAF MTS10110MPC1
40	ZS-389950J	PT BID26X10STL CMT
41	ZS-364543	DT BID30X06STL CMT
42	ML-387311J1	ARM COUPLING

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

MECHA BLOCK (2)



5. P.C BOARD BLOCK

Ref.No.	Part No.	Description
1A	BA-V1116A600A	PC(#)MAIN SECAM BLK F10S [F10S/F11S]
1B	BA-V1116A600C	PC(#)MAIN SECAM BLK F12S [F12S/F15S]
1C	BA-V1116A600E	PC(#)MAIN SECAM BLK F12SK [F12SK]
2A	BA-V1117A500C	PC(#) POWER BLK F10S [F10S/F11S/F12S/F15S]
2B	BA-V1115A500F	PC(#) POWER BLK F12EDG [F12SK]
3A	BA-V1115A630F	PC(#) OPERATION(A) BLK F10S [F10S/F11S]
3B	BA-V1115A635F	PC(#) OPERATION(A) BLK F12S [F12S]
3C	BA-V1115A635G	PC(#) OPERATION(A) BLK F12SK [F12SK]
3D	BA-V1120A630D	PC OPERATION(B) BLK F15S [15S]
4A	BA-V1102A610E	PC PRE AMP(1) BLK F10S [F10S/F11S]
4B	BA-V1102A620H	PC PRE AMP(2) BLK F12S [F12S/F12SK/F15S]
5A	BA-V1103A710A	PC(#) CANAL PLUS BLK 425S [F10S/F11S/F12S/F15S]
5B	BA-V1103A710B	PC(#) CANAL PLUS BLK 465SK [F12SK]

PC (#) MAIN BLK CONSISTS OF FOLLOWING P.C BOARD.
- MAIN P.C BOARD
- VIDEO P.C BOARD
- CANAL PLUS (A)
- CANAL PLUS (B)

PC (#) POWER BLK CONSISTS OF FOLLOWING P.C BOARD. (SK ONLY)
- POWER SUPPLY P.C BOARD
- DIODE P.C BOARD

6. MAIN P.C BOARD

Ref.No.	Part No.	Description
C480	EC-391843J	C DOUBLE FYDOH 223Z 5.5DC
D1	ED-387766J	D ZENER H HZS12A2L F05
D2	ED-307572	D SILICON H 1SS131 [SK]
D3	ED-624903	D SILICON H 1S2473 [S]
D4	ED-624903	D SILICON H 1S2473 [S]
D10	ED-307572	D SILICON H 1SS131
D11	ED-307572	D SILICON H 1SS131
D43	ED-390758J	D ZENER H HZS9C3L F05 [S]
D60	ED-624903	D SILICON H 1S2473
D101	ED-307572	D SILICON H 1SS131
D102	ED-307572	D SILICON H 1SS131
D106	ED-307572	D SILICON H 1SS131
D107	ED-307572	D SILICON H 1SS131
D203	ED-389418J	D ZENER H HZS5.1B3S T26
D204	ED-307572	D SILICON H 1SS131
D206	ED-389840J	D SILICON 1SR139-100HS F10
D207	ED-388359J	D ZENER H HZS4B2
D211	ED-307572	D SILICON H 1SS131
D212	ED-307572	D SILICON H 1SS131
D301	ED-624903	D SILICON H 1S2473
D302	ED-307572	D SILICON H 1SS131
D306	ED-307572	D SILICON H 1SS131
D402	ED-307572	D SILICON H 1SS131
D403	ED-307572	D SILICON H 1SS131
D404	ED-307572	D SILICON H 1SS131
D405	ED-624903	D SILICON H 1S2473
D406	ED-624903	D SILICON H 1S2473
D407	ED-389932J	D ZENER H HZS2C3 T26
D408	ED-307572	D SILICON H 1SS131
D409	ED-387763J	D ZENER H HZS7B3L F05
D410	ED-388368J	D ZENER H HZS9B3L F05
D411	ED-307572	D SILICON H 1SS131
D412	ED-307572	D SILICON H 1SS131
D413	ED-307572	D SILICON H 1SS131
D414	ED-307572	D SILICON H 1SS131
D416	ED-366684	D SILICON H 1SS136 F05
D417	ED-366684	D SILICON H 1SS136 F05
D418	ED-389688J	D ZENER H HZS5B2
D419	ED-307572	D SILICON H 1SS131
D420	ED-307572	D SILICON H 1SS131
D421	ED-307572	D SILICON H 1SS131
D422	ED-388387J	D ZENER H HZS30-2L T26
D423	ED-307572	D SILICON H 1SS131
D424	ED-395862J	D ZENER H HZS7A1L F05 [S]
D424A	ED-387919J	D ZENER H HZS6A1L F05 [SK]
D425	ED-307572	D SILICON H 1SS131
D426	ED-388359J	D ZENER H HZS4B2 [S]
D481	ED-307572	D SILICON H 1SS131
D482	ED-307572	D SILICON H 1SS131 [S]
FL301	EO-388362J	COIL OSC 1 V1102
FR221	*ER-400669J	R FUSE V T05 ERD2FC 1/4W 1200G
FR498	*ER-393219J	R FUSE H S10 RF25S 1/4W 4R7J
FR523	*ER-393220J	R FUSE H S10 RF25S 1/4W 220J [S]
IC10	EI-389622J	IC L5631
IC20	EI-390053J	IC LA7910
IC102	EI-388996J	IC M50455-142SP
IC201	EI-393324J	IC M5218AL
IC301	EI-388360J	IC BA7765AS
IC401	EI-389483J	IC SX2777CS
IC402	EI-373980	IC BA15218N
IC403	EI-389475J	IC UPD75108CW-A86 SXSYP3
IC404	EI-373981J1	IC BA10393N
IC405	EI-353421	IC BA6229
L70	EO-363517	COIL FIX 1 LAP02 F05 R56K [S]
L70A	EO-368617	COIL FIX 1 LAP02 F05 1R5K [SK]
L102	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L104	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L105	EO-387782J	COIL FIX 1 EL0405SKI 2R2K

Ref.No.	Part No.	Description
L106	EO-351866	COIL FIX 1 LAP02 F05 330K
L301	EO-390717J	COIL FIX 1 LHL06TB T05 103J
L302	EO-390716J	COIL FIX 1 LHL06TB T05 272J
L401	EO-354600	COIL FIX 1 LAP02 F05 101K
L402	EO-354600	COIL FIX 1 LAP02 F05 101K
L403	EO-351862	COIL FIX 1 LAP02 F05 100K
L405	EO-391267J	COIL FIX 1 LHL06TB T05 182J
L407	EO-354600	COIL FIX 1 LAP02 F05 101K
L482	EO-354600	COIL FIX 1 LAP02 F05 101K
L483	EO-345927	COIL FIX 1 LAL03KH 101K
R452	*ER-391043J	R FUSE H S10 RF25SC 1/6W R47K [S]
R452A	*ER-336756	R OMF H FS 1W R47J [SK]
SW1	ES-373973	SW SLIDE HSW0810-010 1-01-02S
TR1	ET-353899	TR 2SA1317 S,T,U
TR2	ET-354415	TR DTA144ES
TR3	ET-354414	TR DTC144ES
TR10	ET-375777	TR 2SC2926S P,Q
TR11	ET-353899	TR 2SA1317 S,T,U
TR30	ET-353899	TR 2SA1317 S,T,U [SK]
TR31	ET-353899	TR 2SA1317 S,T,U [SK]
TR32	ET-353899	TR 2SA1317 S,T,U
TR33	ET-353897	TR DTC114ES
TR41	ET-385916J	TR 2SD2159 U,V F05 [S]
TR42	ET-385916J	TR 2SD2159 U,V F05 [S]
TR49	ET-385916J	TR 2SD2159 U,V F05 [S]
TR60	ET-353899	TR 2SA1317 S,T,U
TR62	ET-394881J	TR DTC114WS
TR101	ET-397160J	TR 2SC3330 R,S,T,U,V
TR103	ET-353899	TR 2SA1317 S,T,U
TR105	ET-354414	TR DTC144ES
TR106	ET-354364	TR DTC143TS
TR107	ET-397160J	TR 2SC3330 R,S,T,U,V
TR109	ET-353897	TR DTC114ES
TR110	ET-397160J	TR 2SC3330 R,S,T,U,V
TR111	ET-354414	TR DTC144ES
TR112	ET-356336	TR DTA114ES
TR113	ET-353899	TR 2SA1317 S,T,U
TR203	ET-388338J	TR 2SB1425 S,E
TR204	ET-354414	TR DTC144ES
TR205	ET-366168	TR 2SD1292 Q,R
TR206	ET-353899	TR 2SA1317 S,T,U
TR207	ET-397160J	TR 2SC3330 R,S,T,U,V
TR301	ET-397160J	TR 2SC3330 R,S,T,U,V
TR303	ET-388338J	TR 2SB1425 S,E
TR304	ET-388338J	TR 2SB1425 S,E
TR306	ET-353899	TR 2SA1317 S,T,U
TR401	ET-354414	TR DTC144ES
TR402	ET-354414	TR DTC144ES
TR403	ET-354414	TR DTC144ES
TR404	ET-363953	TR DTA114TS
TR405	ET-354414	TR DTC144ES
TR406	ET-354414	TR DTC144ES
TR408	ET-366168	TR 2SD1292 Q,R
TR409	ET-397160J	TR 2SC3330 R,S,T,U,V
TR410	ET-397160J	TR 2SC3330 R,S,T,U,V
TR411	ET-397160J	TR 2SC3330 R,S,T,U,V
TR412	ET-353899	TR 2SA1317 S,T,U
VR101	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR301	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR302	EV-389481J	R S-FIX H T05EVNDXAA03 0.1W473
VR401	EV-397066J	R S-FIX H T05EVNDXAA03 0.1W333
X401	EI-385940J	OSC CE CST4.19MGWTF 4.194MHZ
1A	EE-375426	TV TUNER TEMQ1-009A [S]
1B	EE-387601J	TV TUNER TERR1-001A SK [SK]
2A	BV-390153J	RF CONVERTER MDLK6F063A S [S]
2B	BV-390155J1	RF CONVERTER MDLK2R116B SK [SK]

7. VIDEO P.C BOARD

Ref.No.	Part No.	Description
D601	ED-307572	D SILICON H 1SS131
D602	ED-307572	D SILICON H 1SS131
D603	ED-392779J	D SCHOTTKY 1SS198 T26
D701	ED-307572	D SILICON H 1SS131
D702	ED-307572	D SILICON H 1SS131
D703	ED-307572	D SILICON H 1SS131
D704	ED-307572	D SILICON H 1SS131
FL601	EH-364066	FILTER LC LP H322LWQ-1166MAD
FL602	EH-368821	FILTER LC LP MYV-23R
FL701	EH-389200J	FILTER LC BP SBP-4425-107M
FL702	EH-378927J	FILTER LC BP BPF-K5-MS(5969)
FL703	EH-367043	FILTER LC BP H289BNKN-7235LHD
IC601	EI-389467J	IC AN3247NK
IC602	EI-373966	IC MSM6965-3RS
IC701	EI-372243	IC BA7107S
L601	EO-357507	COIL FIX 1 LAP02 F05 121K
L602	EO-357507	COIL FIX 1 LAP02 F05 121K
L603	EO-351868	COIL FIX 1 LAP02 F05 470K
L604	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L605	EO-360555	COIL FIX 1 LAP02 F05 180K
L606	EO-351862	COIL FIX 1 LAP02 F05 100K
L607	EO-357508	COIL FIX 1 LAP02 F05 151K
L608	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L609	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L610	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L611	EO-391141J	COIL FIX 1 EL0405SKI R47M
L612	EO-391141J	COIL FIX 1 EL0405SKI R47M
L613	EO-354600	COIL FIX 1 LAP02 F05 101K [S]
L701	EO-353900	COIL FIX 1 LAP02 F05 150K
L702	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L703	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L704	EO-357508	COIL FIX 1 LAP02 F05 151K
L705	EO-351860	COIL FIX 1 LAP02 F05 8R2K
L706	EO-356722	COIL FIX 1 LAP02 F05 6R8K
L707	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L708	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
TR602	ET-353899	TR 2SA1317 S,T,U
TR604	ET-353899	TR 2SA1317 S,T,U
TR608	ET-397160J	TR 2SC3330 R,S,T,U,V
TR701	ET-354414	TR DTC144ES
TR702	ET-354414	TR DTC144ES
TR703	ET-397160J	TR 2SC3330 R,S,T,U,V
TR705	ET-364064	TR UN4119
TR706	ET-354415	TR DTA144ES
TR707	ET-397160J	TR 2SC3330 R,S,T,U,V
TR708	ET-397160J	TR 2SC3330 R,S,T,U,V
TR709	ET-397160J	TR 2SC3330 R,S,T,U,V
TR710	ET-397160J	TR 2SC3330 R,S,T,U,V
TR711	ET-397160J	TR 2SC3330 R,S,T,U,V
VL701	EO-364062	COIL VARI 1 F291CNS-0666GW
VL702	EO-364063	COIL VARI 1 F291CNS-0665BS
VR601	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR602	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W153
VR603	EV-389482J	R S-FIX H T05EVNDXAA03 0.1W682
VR604	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472
VR605	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR606	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR701	EV-391118J	R S-FIX H T05 RH064JC 0.3W 223
X701	EI-309878	OSC X"TAL 4.433619MHZ

8. PRE-AMP P.C BOARD (VS-F10S/F11S)

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
IC1	EI-387598J	IC BA7252S
L1	EO-376857	COIL FIX 1 LF-5.0S F05 5R6K
L3	EO-376858	COIL FIX 1 LF-5.0S F05 560K
L4	EO-376603	COIL FIX 1 LF-5.0S F05 150K
L5	EO-387803J	COIL FIX 1 EL0405SKI 221K
L6	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L8	EO-376859	COIL FIX 1 LF-5.0S F05 8R2K
L9	EO-376859	COIL FIX 1 LF-5.0S F05 8R2K
L11	EO-376612	COIL FIX 1 LF-5.0S F05 680K
L12	EO-388088J	COIL FIX 1 EL0405SKI 151K
L13	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L14	EO-376610	COIL FIX 1 LF-5.0S F05 330K
L15	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
P2	EJ-387587J	SOCKET 8370-67-800 6P
PS3	EJ-389318J	SOCKET HOUSING 5062-30-10-09
TR1	ET-353899	TR 2SA1317 S,T,U
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR6	ET-397160J	TR 2SC3330 R,S,T,U,V
TR7	ET-397160J	TR 2SC3330 R,S,T,U,V
VR1	EV-390157J	R S-FIX V KVSF639A 0.10W 102
WP3	EW-389312J	CORD FFC P1.25 L=180 9P

9. PRE-AMP P.C BOARD (VS-F12S/SK/F15S)

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D5	ED-307572	D SILICON H 1SS131
D8	ED-307572	D SILICON H 1SS131
IC1	EI-387586J	IC BA7244BS
L1	EO-376858	COIL FIX 1 LF-5.0S F05 560K
L2	EO-376603	COIL FIX 1 LF-5.0S F05 150K
L3	EO-381193J	COIL FIX 1 EL0405SKI 271K
L4	EO-376614	COIL FIX 1 LF-5.0S F05 220K
L5	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L6	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L7	EO-376607	COIL FIX 1 LF-5.0S F05 181K
L8	EO-376612	COIL FIX 1 LF-5.0S F05 680K
L10	EO-380734J	COIL FIX 1 LF-5.0S F05 6R8K
L11	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L12	EO-376610	COIL FIX 1 LF-5.0S F05 330K
L14	EO-376857	COIL FIX 1 LF-5.0S F05 5R6K
L15	EO-376859	COIL FIX 1 LF-5.0S F05 8R2K
P1	EJ-387587J	SOCKET 8370-67-800 6P
PS1	EJ-389815J	SOCKET HOUSING 5062-30-10-15
TR1	ET-397160J	TR 2SC3330 R,S,T,U,V
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR10	ET-354414	TR DTC144ES
TR11	ET-353899	TR 2SA1317 S,T,U
TR12	ET-397160J	TR 2SC3330 R,S,T,U,V
VR1	EV-391042J	R S-FIX V KVSF639A 0.10W 501
VR2	EV-390157J	R S-FIX V KVSF639A 0.10W 102
WP1	EW-389317J	CORD FFC P1.25 L=180 15P

10. OPERATION P.C BOARD

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-387765J	D ZENER H HZS9C1L F05
D3	ED-307572	D SILICON H 1SS131
D4	ED-384628J	D LED GL5HY47-C YELLOW [QUICK START]
D6	ED-307572	D SILICON H 1SS131
D7	ED-307572	D SILICON H 1SS131
D8	ED-307572	D SILICON H 1SS131
D9	ED-307572	D SILICON H 1SS131
D10	ED-307572	D SILICON H 1SS131
D11	ED-307572	D SILICON H 1SS131
D12	ED-307572	D SILICON H 1SS131
D13	ED-307572	D SILICON H 1SS131
D14	ED-307572	D SILICON H 1SS131
D15	ED-307572	D SILICON H 1SS131
D16	ED-307572	D SILICON H 1SS131 [SK]
D18	ED-307572	D SILICON H 1SS131
FL1	EM-387626J	IND FL FV375G CHARACTER
IB1	EH-389621J	COMP R RN3H-G-A 103J
IB2	EH-389620J	COMP R RN3H-4-A 473J
IC1	EI-395088J	IC UPD75216A SX2OPS2-A81
IC2	EI-394467J	IC X24C01P
IC3	EI-373955	IC S-8053ALR
PH1	ET-381637J2	DETECTOR GP1U521X
PS1	EJ-389815J	SOCKET HOUSING 5062-30-10-15
PS2	EJ-387497J	SOCKET HOUSING 5062-30-10-13
SW1	ES-349474	SW TACT SKHHAM004A [RESET]
SW2	ES-349474	SW TACT SKHHAM004A [STOP]
SW3	ES-349474	SW TACT SKHHAM004A [EJECT]
SW4	ES-349474	SW TACT SKHHAM004A [POWER]
SW5	ES-349474	SW TACT SKHHAM004A [PLAY]
SW7	ES-349474	SW TACT SKHHAM004A [PAUSE]
SW8	ES-349474	SW TACT SKHHAM004A [CH UP]
SW9	ES-349474	SW TACT SKHHAM004A [F.FWD]
SW10	ES-349474	SW TACT SKHHAM004A [Q TIMER M]
SW11	ES-349474	SW TACT SKHHAM004A [TV/VCR]
SW12	ES-349474	SW TACT SKHHAM004A [REC]
SW13	ES-349474	SW TACT SKHHAM004A [TIMER]
SW15	ES-349474	SW TACT SKHHAM004A [SLOW]
SW16	ES-349474	SW TACT SKHHAM004A [CH DOWN]
SW17	ES-349474	SW TACT SKHHAM004A [REW]
SW18	ES-349474	SW TACT SKHHAM004A [Q TIMER STOP]
SW19	ES-349474	SW TACT SKHHAM004A [Q TIMER H]
TR1	ET-354414	TR DTC144ES
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR3	ET-364060	TR DTC143ES
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-397160J	TR 2SC3330 R,S,T,U,V
WP1	EW-394623J	CORD FFC P1.25 L=110 15P
WP2	EW-394619J	CORD FFC P1.25 L=110 13P
X1	EI-373957J1	OSC CE CST4.19MGW 4.194MHZ
X2	EI-368825	OSC X"TAL MX-38T 32.768KHZ

11. VIF UNIT

Ref.No.	Part No.	Description
CF1A	EH-729780J	FILTER CE SAF32.7MZ81Z [S]
CF1B	EH-368816	FILTER CE SAF38.0MZA70Z [SK]
CF2A	EH-376338	FILTER CE TPS6.5MB [S]
CF2B	EH-780128	FILTER CE SFE 6.5MB [SK]
CF3A	EH-711868	FILTER SAW SAF39.2MB51P [S]
CF3B	EH-376338	FILTER CE TPS6.5MB [SK]
D1	ED-717990	D SILICON 1SS181 [S]
D2	ED-717990	D SILICON 1SS181 [S]
IC1A	EI-715731	IC TA7718P [S]
IC1B	EI-368809	IC M51496P [SK]
IC2	EI-715731	IC TA7718P [S]
IC3	EI-727766J	IC M51848L [S]
IC4	EI-393324J	IC M5218AL [S]
L1	EO-387800J	COIL FIX 1 EL0405SKI 2R7K [SK]
L2	EO-388160J	COIL FIX 1 EL0405SKI 1R8K [S]
L3	EO-725955J	COIL SIF DET 6F16263A4 [SK]
L4A	EO-715734	COIL TANK 7KL 6F16118B1 [S]
L4B	EO-725956J	COIL AFT 6F16262A1 [SK]
L5A	EO-387782J	COIL FIX 1 EL0405SKI 2R2K [S]
L5B	EO-725960J	COIL TANK 6F16259A1 [SK]
L6A	EO-726117J	COIL AFT 6F16174B2 [S]
L6B	EO-387798J	COIL FIX 1 EL0405SKI 150K [SK]
L7A	EO-381189J	COIL FIX 1 EL0405SKI 100K [S]
L7B	EO-387798J	COIL FIX 1 EL0405SKI 150K [SK]
L8A	EO-388161J	COIL FIX 1 EL0405SKI 560K [S]
L8B	EO-387802J	COIL FIX 1 EL0405SKI 330K [SK]
L9	EO-715738	COIL TANK 7KL 6F16120B1 [S]
Q1	ET-725820J	TR CHIP 2SC2735J
Q2	ET-713614	TR CHIP 2SA1235 E,F
Q3	ET-713615	TR CHIP 2SC3052 E,F [S]
Q4	ET-713614	TR CHIP 2SA1235 E,F [S]
Q5	ET-713615	TR CHIP 2SC3052 E,F [S]
Q6	ET-713615	TR CHIP 2SC3052 E,F [S]
Q7	ET-713615	TR CHIP 2SC3052 E,F [S]
Q8	ET-725820J	TR CHIP 2SC2735J [S]
Q9	ET-713614	TR CHIP 2SA1235 E,F [S]
Q10	ET-713615	TR CHIP 2SC3052 E,F [S]
VR1A	EV-388164J	R S-FIX V RVF6W01 0.10W 502 [S]
VR1B	EV-725966J	R S-FIX V RVF6W01 203K [SK]
VR2A	EV-344828	R S-FIX V RVF8W01 0.10W 203 [S]
VR2B	EV-388163J	R S-FIX V RVF6W01 0.10W 202 [SK]
VR3	EV-366846	R S-FIX V RVF8W01 0.10W 202 [S]

12. POWER SUPPLY P.C BOARD (S ONLY)

Ref.No.	Part No.	Description
C1	*EC-389414J	C CE V DE7 B102K 400AC
C2	EC-363491	C EC V CUT SME 222M 25.0DC
C3	EC-366879	C EC V CUT SME 222M 50.0DC
C7	EC-364978	C EC V CUT SME 102M 16.0DC
C8	EC-366880	C EC V CUT SME 332M 16.0DC
D1	*ED-511907	D SILICON 1N4002 100/1.0A
D2	*ED-511907	D SILICON 1N4002 100/1.0A
D3	*ED-511907	D SILICON 1N4002 100/1.0A
D4	*ED-511907	D SILICON 1N4002 100/1.0A
D5	*ED-511907	D SILICON 1N4002 100/1.0A
D6	*ED-511907	D SILICON 1N4002 100/1.0A
D8	ED-322046	D ZENER H HZ18 1
D9	*ED-392651J	D SILICON 1N5401 F15 100/3.0A
D10	*ED-392651J	D SILICON 1N5401 F15 100/3.0A
D11	*ED-511907	D SILICON 1N4002 100/1.0A
D12	*ED-511907	D SILICON 1N4002 100/1.0A
D13	*ED-511907	D SILICON 1N4002 100/1.0A
D14	*ED-511907	D SILICON 1N4002 100/1.0A
FR1	*ER-392807J	R FUSE H S10 RF25SC 1/6W R12K
FR2	*ER-392807J	R FUSE H S10 RF25SC 1/6W R12K
FR4	*ER-391043J	R FUSE H S10 RF25SC 1/6W R47K
FR5	*ER-389985J	R FUSE H S10 RF25SC 1/6W R56K
FR6	*ER-392819J	R FUSE H S10 RF25SC 1/4W R10K
R3	ER-389875J	R OMF H S10 FS 1/2W R68J
R4	ER-389984J	R OMF H S10 FS 1/2W 5R1J
TR1	ER-389875J	R OMF H S10 FS 1/2W R68J
TR2	ET-373025	TR 2SD1944 J1,J2,K
TR3	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-380685J	TR 2SD1761 E,F,G
TR5	ET-380685J	TR 2SD1761 E,F,G
TR6	ET-380685J	TR 2SD1761 E,F,G
TR7	ET-380685J	TR 2SD1761 E,F,G
TR8	ET-354364	TR DTC143TS

13. POWER SUPPLY P.C BOARD (SK ONLY)

Ref.No.	Part No.	Description
C1	*EC-389414J	C CE V DE7 B102K 400AC
C2	EC-363491	C EC V CUT SME 222M 25.0DC
C3	EC-364958	C EC V CUT SME 222M 35.0DC
D1	*ED-511907	D SILICON 1N4002 100/1.0A
D2	*ED-511907	D SILICON 1N4002 100/1.0A
D3	*ED-511907	D SILICON 1N4002 100/1.0A
D4	*ED-511907	D SILICON 1N4002 100/1.0A
D5	ED-624903	D SILICON H 1S2473
D8	ED-322046	D ZENER H HZ18 1
D10	ED-343996	D ZENER H HZ12 B1
FR1	*ER-392819J	R FUSE H S10 RF25SC 1/4W R10K
FR3	*ER-391044J	R FUSE H S10 RF25SC 1/6W R68K
FR4	*ER-392807J	R FUSE H S10 RF25SC 1/6W R12K
R6	ER-389875J	R OMF H S10 FS 1/2W R68J
TR1	ET-373025	TR 2SD1944 J1,J2,K
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR3	ET-380685J	TR 2SD1761 E,F,G
TR4	ET-380685J	TR 2SD1761 E,F,G
TR5	ET-380685J	TR 2SD1761 E,F,G

14. DIODE P.C BOARD (SK ONLY)

Ref.No.	Part No.	Description
D9	*ED-379298	D SILICON DBA20B 100/2.0A

15. JUNCTION P.C BOARD

Ref.No.	Part No.	Description
D1	ED-391103J	D ZENER H HZS12B2
TR1	ET-380685J	TR 2SD1761 E,F,G

16. CANAL PLUS (A) P.C BOARD

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
IC1	EI-380199J	IC BU4066BL
IC2	EI-380199J	IC BU4066BL [S]
IC3	EI-380199J	IC BU4066BL [S]
IC4	EI-200573	IC TC4053BP [S]
L1	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
TR1	ET-353899	TR 2SA1317 S,T,U
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR3	ET-354415	TR DTA144ES
TR4	ET-354414	TR DTC144ES [S]
TR5	ET-353899	TR 2SA1317 S,T,U
TR6	ET-353899	TR 2SA1317 S,T,U [S]
TR7	ET-397160J	TR 2SC3330 R,S,T,U,V [S]
TR8	ET-397160J	TR 2SC3330 R,S,T,U,V [S]
TR9	ET-353899	TR 2SA1317 S,T,U [S]
TR10	ET-353899	TR 2SA1317 S,T,U [S]

17. CANAL PLUS (B) P.C BOARD

Ref.No.	Part No.	Description
C10	EC-362814	C EC V T05 SME 471M 6.3DC [SK]
C20	EC-389908J	C EC V SME 102M 6.3DC [S]
D2	ED-307572	D SILICON H 1SS131 [S]
D3	ED-307572	D SILICON H 1SS131 [S]
D4	ED-307572	D SILICON H 1SS131 [S]
PJ1A	EJ-389915J	SOCKET M1817-A 21P [S]
PJ1B	EJ-389864J	SOCKET M1817 21P [SK]
PJ2	EJ-389864J	SOCKET M1817 21P [S]
PJ3	EJ-389913J	PIN J YKB11-0173 BLACK 1P [S]
PJ4	EJ-389914J	PIN J YKB11-0177 YELLOW 1P [S]
TR11	ET-397160J	TR 2SC3330 R,S,T,U,V [S]
TR12A	ET-397160J	TR 2SC3330 R,S,T,U,V [S]
TR12B	ET-353899	TR 2SA1317 S,T,U [SK]
TR13	ET-353899	TR 2SA1317 S,T,U [S]
TR14	ET-397160J	TR 2SC3330 R,S,T,U,V [S]
TR15	ET-397160J	TR 2SC3330 R,S,T,U,V
TR16	ET-397160J	TR 2SC3330 R,S,T,U,V [S]
TR17	ET-397160J	TR 2SC3330 R,S,T,U,V [S]
TR18	ET-397160J	TR 2SC3330 R,S,T,U,V [S]
TR19	ET-354415	TR DTA144ES [S]
TR20	ET-397160J	TR 2SC3330 R,S,T,U,V [S]
1A	SP-387684J1	PANEL REAR JACK S [S]
1B	SP-387733J	PANEL REAR JACK SK [SK]

18. FINAL ASSEMBLY BLOCK

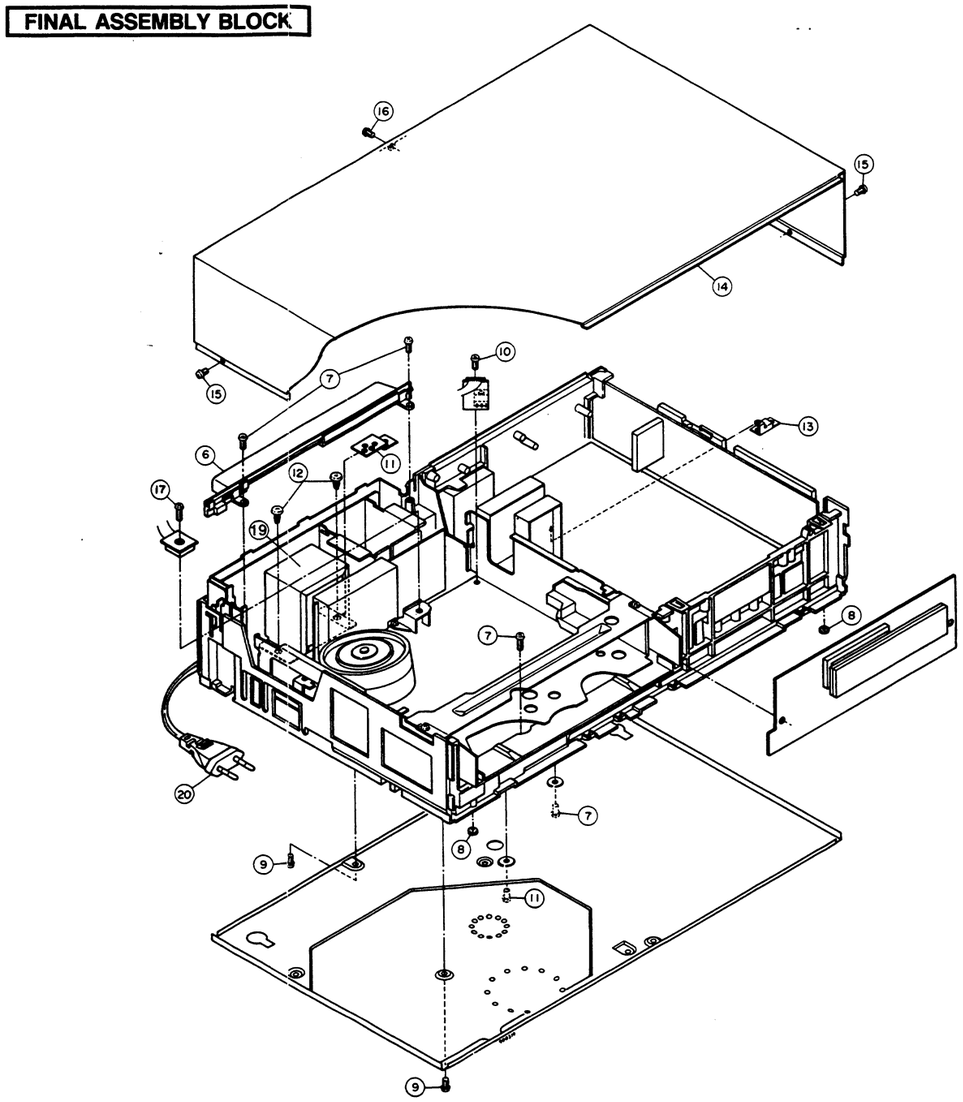
Ref.No.	Part No.	Description
1A	BD-395834J1	PANEL FRONT-F10(F)-B PART [F10S]
1B	BD-395937J1	PANEL FRONT-F11(FD)-B PRAT [F11S]
1C	BD-395836J1	PANEL FRONT-F12(F)-B PRAT [F12S/F12SK]
1D	BD-395837J2	PANEL FRONT-F15(F)-B PART [F15S]
2A	SE-392876J	MASK CASSETTE VS-F10(F) [F10S]
2B	SE-392879J	MASK CASSETTE VS-F11(F) [F11S]
2C	SE-392882J	MASK CASSETTE VS-F12(F) [F12S/F12SK]
2D	SE-390614J	MASK CASSETTE VS-15(F) [F15S]
3	ZG-387370J	SP MASK
4A	SP-392897J1	PANEL DOOR(F2) [F10S/F11S]
4B	SP-392893J1	PANEL DOOR(F) [F12S/F12SK]
4C	SP-392902J	DOOR FRONT(F) [F15S]
5	SZ-390032J	LATCH DOOR 3550-1
6	SC-387353J	COVER TRANS
7	ZS-362378	PLX BID30X10STL CMT
8	SA-387507J	FOOT SX
9	ZS-364543	DT BID30X06STL CMT
10	ZS-378341	PLX BID30X12STL CMT
11	ZG-387505J	PLATE EARTH
12	ZS-373962	PLX BID40X10STL CMT
13	ZG-387354J	PLATE EARTH(2)
14	SP-395632J	COVER UPPER P SUEDE(2)
15	ZS-385611J	DT BID26X06STL BNI
16	ZS-391046J	PLX BID26X10STL BNI
17	ZS-357946	PLX PAN30X10STL CMT C080
18	ZG-392214J	PLATE EARTH(3)
19A	*BT-391110J	TRANS POW V1105 EOG [F10S/F11S/F12S/F15S]
19B	*BT-391084J1	TRANS POW V1102 EO [F12SK]
20	*EW-385900M	AC CORD 200 SE-1H03VV B130 A E

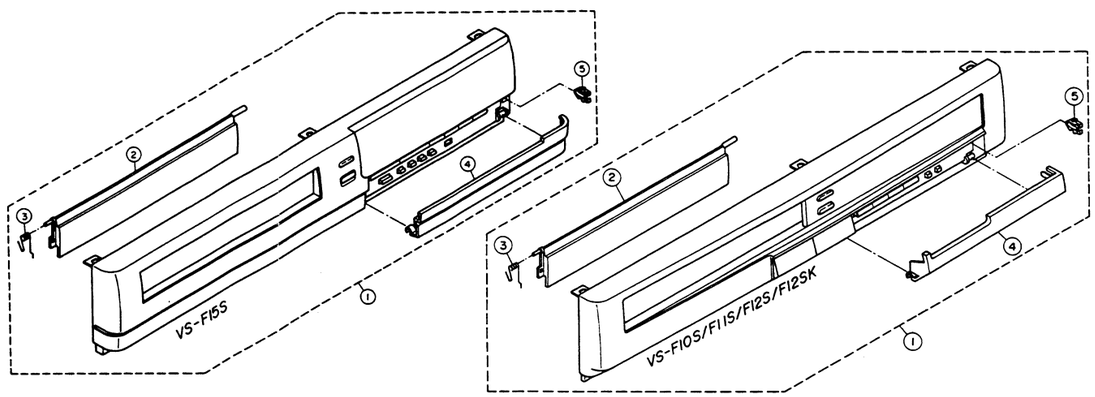
NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

19. ACCESSARY

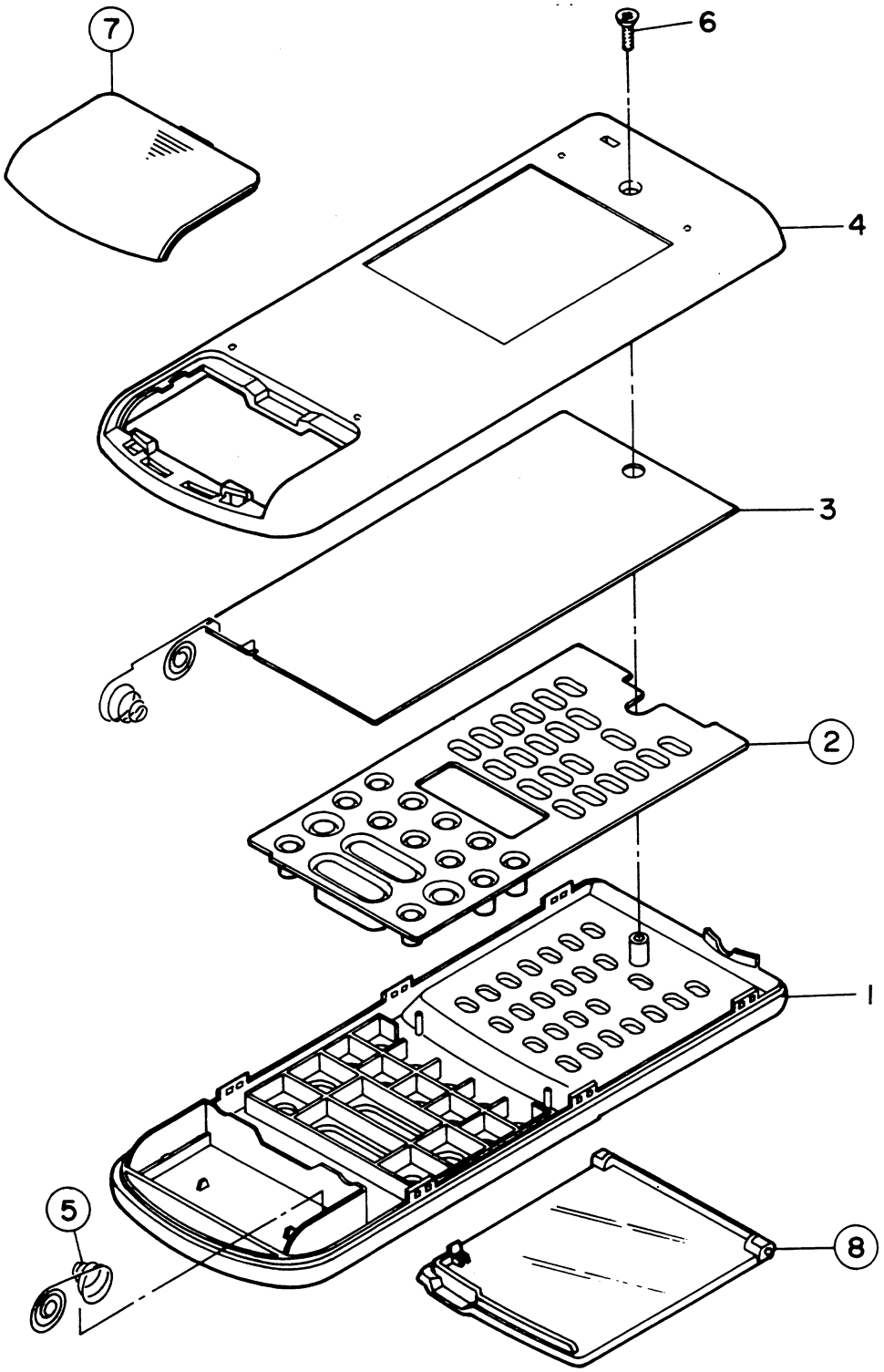
Ref.No.	Part No.	Description
1	AV-348415	CORD SECAM
2A	AV-B1012B010B	REMOCON BLK RC-V10A-FB [F10S/F12S/F12SK]
2B	AV-B1014B015B	REMOCON BLK RC-V16A-FB [F11S/F15S]

FINAL ASSEMBLY BLOCK





REMOCON RC-V10A-FB



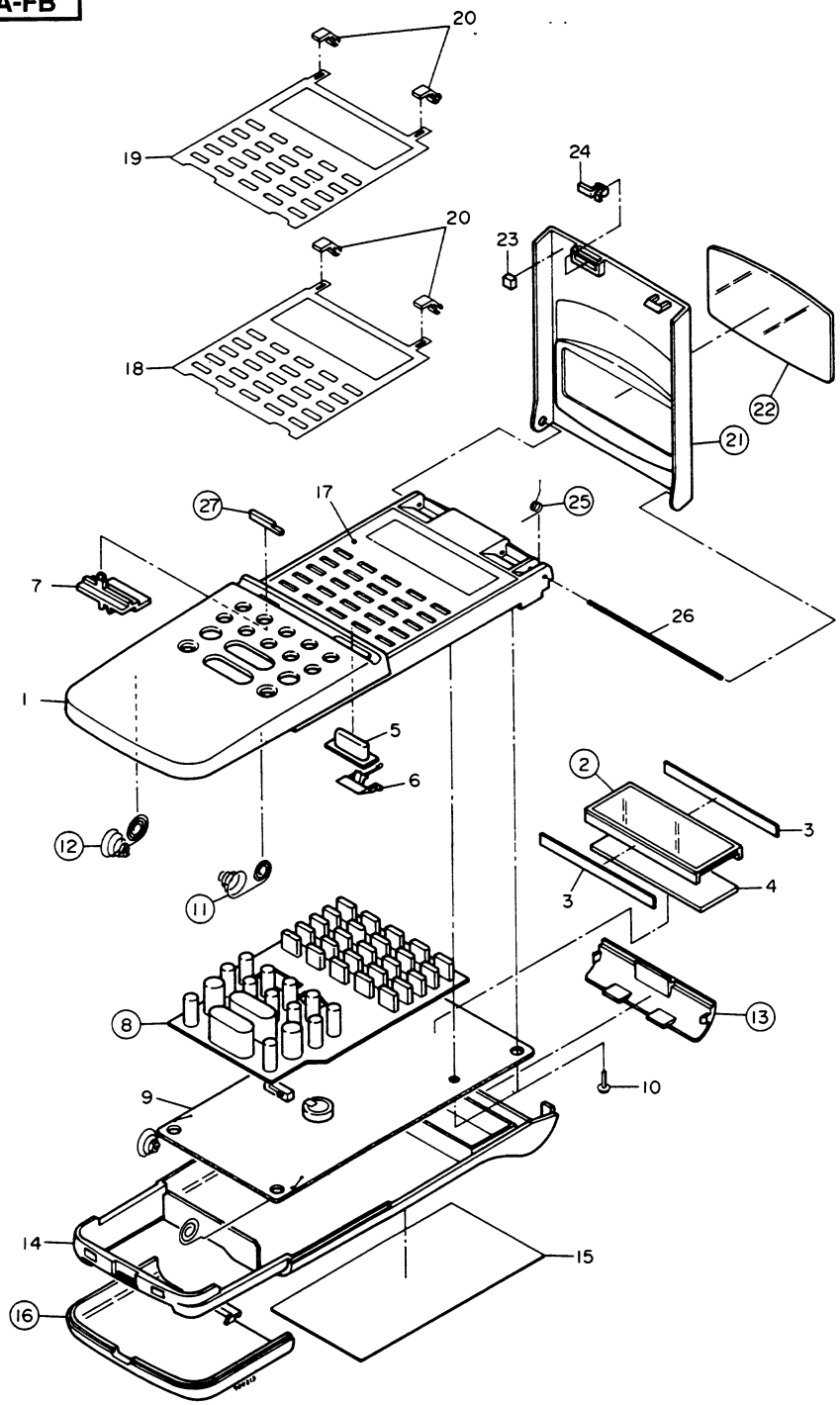
20. REMOCON RC-V10A-FB

Ref.No.	Part No.	Description
2	MB-394376J	KEY RUBBER
5	ZG-394389J	TERMINAL BATTERY(Q3)
7	SC-394382J	COVER BATTERY(N)-2
8	SP-394383J	DOOR PANEL

21. REMOCON P.C BOARD (RC-V10A)

Ref.No.	Part No.	Description
D1	ED-395865J	D LED GL527F INFRARED
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-307572	D SILICON H 1SS131
IC1	EI-376112	IC UPD6122G
TR1	ET-360695	TR 2SD1302 S,T
X1	EI-390687J	OSC CE CSU455PL 455KHZ
1	ZG-394428J	TERMINAL BATTERY(P1)
2	ZG-394429J	TERMINAL BATTERY(P2)

REMOCON RC-V16A-FB



22. REMOCON RC-V16A-FB

Ref.No.	Part No.	Description
2	EM-390787J	IND LCD LF5296G FRENCH
8	MB-394388J	KEY RUBBER
11	ZG-394389J	TERMINAL BATTERY(Q3)
12	ZG-394381J	TERMINAL BATTERY(P3)
13	SE-394390J	FILTER
16	SC-394394J	COVER BATTERY
21	SP-395159J	DOOR PANEL(1)-F2
22	SP-394398J1	WINDOW LCD
25	ZG-394400J	SP DOOR
27	SK-395114J	KNOB SLIDE(1)

23. REMOTO CONTROL P.C BOARD (RC-V16A)

Ref.No.	Part No.	Description
C101	EC-368823	C DBL LAYER EECS5R5H 473Z5.5DC
D1	ED-376111	D LED SE303AC INFRARED
D101	ED-376111	D LED SE303AC INFRARED
D102	ED-386031J	D SILICON CHIP MA110-TW
IC1	EI-395096J	IC UPD75306GF HFXREM5-120
IC2	EI-394613J	IC S-8052ALO-LG-T1
SW1	ES-394485J	SW SLIDE SSSS21 1-01-03N
TR1	EI-393335J	TR CHIP 2SC3938-TW R,S
X1	EI-368825	OSC X'TAL MX-38T 32.768KHZ
X2	EI-394614J	OSC CE CSA2.20MG 2.200MHZ
1	ZG-394404J	TERMINAL BATTERY(Q1)
2	ZG-394405J	TERMINAL BATTERY(Q2)

ABBREVIATIONS (VIDEO)

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
A	Audio or Analogue	MOD	MODulator
AC	Alternating Current	MRS.	Motor ReverSe
ACC	Automatic Color Control	NG	Noise Gate
A/C	Audio and Control	NICAM	Near Instanteneous Compand Audio Multiplex
ADJ	ADJust (ment)		
AFC	Automatic Frequency Control	NON-LIN	NON-LINear
AFT	Automatic Fine Tuning	N.T.S.C.	National Television System Committee
AGC	Automatic Gain Control	OSC	OSCillator
AH	Audio Head	PAL	Phase Alternation by Line
AL	ALways (voltage)	PB	Play Back
ALC	Automatic Level Control	PCB (P.C.B)	Printed Circuit Board
A-SW.P	Audio SWitching Pulse	P-COM	Phase-COMparator
A-MUTE	Audio MUTE	P DOWN	Power DOWN
ANT	ANTenna	PG	Pulse Generator
APC	Automatic Phase Control	P.I.P	Picture In Picture
ASSY	ASSemblY	PL, PLG	PLunger (PLunGer)
BAL	BALance	PRG (PGM)	PRoGram (ProGraM)
B DOWN	Break DOWN	PU	Pick UP (head, pulse)
BGP	Burst Gate Pulse	PWR	PoWeR
BLK	BLocK or BLacK	Q	Quality factor
BPF	Band Pass Filter	R	Right
BU	Back Up (voltage)	RAM	Random Access Memory
B/W	Black and White	REC	RECord
C	Chroma or Color	REF	REFerence
CCD	Charge Coupled Device	REF-V	REFerence Vertical signal
CCIR	Comité Consultatif International des Radio communications	REG	REGulator
		REV (REVW)	REView (REVieW)
CH (ch)	CHannel (channel)	REW	REWind
CLK	CLocK	RF	Radio Frequency
CM	Capstan Motor	ROM	Read Only Memory
CN	CoNnector	R.S SW	Record-Safety SWitch
COMP	COMParator	RST (RES)	ReSet (RESet)
CSW	Cassette SWitch	RVS	ReVerSe
CSYNC	Composite SYNC	S	Sensor, Shield
CTL	ConTrol	SAW	Surface Acoustic Wave
CUE	CUE	SC	SimulCast
DAC	Digital to Analog Converter	S CLK	Serial CLocK
DC	Direct Current	SECAM	SÉquentiel Couleur À Mémoire
DEMOD	DEMODulator	S & H	Sample and Hold
DET	DETetct (DETector)	SLP	Super Long Play
DL	Delay Line	SP	Standard Play
DM	Drum Motor	SPD	SPeeD
DOC	Drop Out Compensator	SRP	Supply Reel Pulse
D.P.E	Drum Phase Error	SRV	SeRVo
D.PG	Drum Pulse Generator	SOW	Sync On Word
EE	Electronic to Electronic	STBY	STandBY
EF	Emitter Follower	S.VHS	Super VHS
EMPHA	EMPHAsis	SW	SWitch
ENV	ENVelope	SW'NG	SWitchiNG
EP	Extended Play	SWP	SWitching Pulse
EP ROM	Erasable Programmable ROM	SYNC	SYNChronize
EQ	EQualizer	T-AUDIO	Tuner AUDIO
FE	Full track Erase	TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
FF	Flip-Flop or Fast Foward	TRK	TRacKing
FG	Frequency Generator	TRP	Take up Reel Pulse
Fig	Figure	T/U	Take Up
FLD	FLuorescent Display	TV	TeleVision
FM	Frequency Modulation	UHF	Ultra High Frequency
Fo	resonance Frequency	UNR	UNRegulated (voltage)
FREQ	FREQuency	V	Vertical or Video
GND	GrouND	VASS	Video Address Search System
H	Horizontal	VCO	Voltage Controlled Oscillator
HP	Horizontal (sync) pulse	VH	Video Head
HPF	High Pass Filter	VHF	Very High Frequency
HQ	High Quality System	VHS	Video Home System
IC	Integrated Circuit	VIF	Video Intermediate Frequency
ID	IDentification	VISS	Video Index Search System
IDL	IDLe (Voltage)	VJ	Video Judge
IMS	Interactive Monitor System	VM	Voltage for Memory
INS	INSert	VOB	Video On Blank
INV	INVerter	VOW	Video On Word
L	Left	VP	Vertical (sync) Pulse
LED	Light Emitting Diode	VPS	Video Program System
LIM	LIMitter	VPT	Video Programming by video Text
LM	Loading Motor	VT	Voltage for Tuning
LM STP	Loading Motor STop	WHT	WHiTe
LP	Long Play	Y	Luminance
LPF	Low Pass Filter	2H	2 Hour (SP)
ME-SECAM	Middle East SECAM	4H	4 Hour (LP)
MI-COM	MIcro COMputer	6H	6 Hour (SLP/EP)
MM	Mono-stayble Multi		

AKAI

MODEL VS-F10S, F11S
MODEL VS-F12S/SK
MODEL VS-F15S

SCHEMATIC DIAGRAMS AND PC BOARDS

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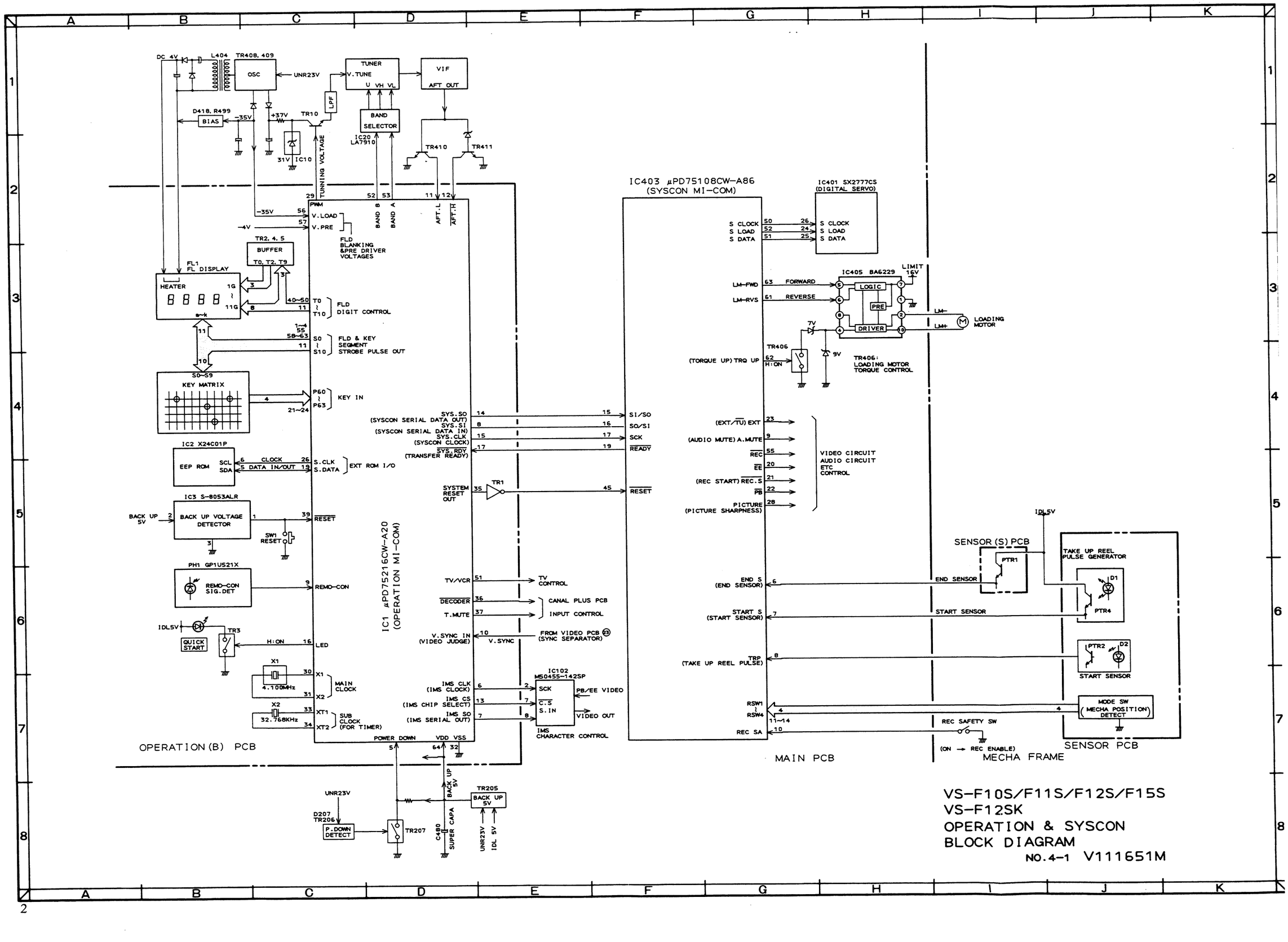


VS-F10S/F11S/F12S/F15S
VS-F12SK
OPERATION & SYSCON BLOCK DIAGRAM

NO.4-1 V111651M

REC. PB

EE. REC

PB

REC. PB

REC

PB

PB

PB

PB

PB

PB

EE. REC

IC1 BA7244BS

VIDEO HEAD

SP CH-2

SP CH-1

SP CH-3 (TRICK)

P1

SWP

CH-1/CH-2

PRE1

PRE2

PRE3

PRE4

HEAD. SW

ENV DET

COMP

SP/LP

REC Vcc

REC.S.9V

VR2 REC.Y

TP2 SWP

TP3 REC CURR

NORMAL/TRICK HEAD SELECT

EQ

LP REC AMP

SP REC AMP

AGC

AGC DET

PEAKING

CHROMA AMP

PB Vcc

PB5V

TR11

TR1

TR2

TR12

TR4

TR10

D5

D4

D3

D6

NORMAL/TRICK ENVE COMP OUT

PRE AMP PCB

ANT IN

RF OUT

RF CONVERTOR

V.OUT

A.OUT

SERVO & SYS-CON CIRCUIT

PICTURE SHARPNESS

SWP

P203

GND

PB LC

SWP

REC.C

PB.Y

PB5V

REC.Y

REC.S.9V

ENVE DET

C SWP

ENVE SW

NC

NC

IDL5V

STILL.H

WP1

PB.LC

REC.C

PB.Y

REC.Y

V.SYNC

V.OUT

V.IN

C.SYNC

IC701 BA7107S

C724

C726

L704

C725

R727

X2

P.B5

PB5V

VL702 1.07MHz EQ EQUALIZER LEVEL

TR608

LPF C638, C639 R630 to R632

IDL5V

VR602 VIDEO EE LEVEL

TRAP

FL601 SECAM LPF

MUTE

PICTURE SHARPNESS FROM MAIN PCB IC403 (29)

TR707

VR701 NOISE GATE

GATE

SYNC TIMING

FL703 BPF 4.3MHz

P.B SYNC GATE

VCC

1/4

REC SYNC GATE

REC.S

FL702 BPF 4.43MHz

TR708

TR703

FL701 BPF 1.07MHz

C701

VL701 4.43MHz BELL FILTER

BELL FILTER

REC:ON

TR701

REC5V

C705

TR702

B/W

B/W:ON

VR601 VIDEO PB LEVEL

TR705

TR706

REC5V

IDL5V

REC:ON

PB5V

REC

PB

REC

PB

EE. REC

PB

REC. PB

D E F G H I

EE, REC | PB | REC | PB | EE, REC | PB

EXCEP

ANT IN
RF OUT
RF CONVERTOR
RF IN
TUNER BLK
V.OUT
A.OUT
TR101
TR103
IF IN
V.OUT
VIF UNIT
A.OUT
TR60
IDL12V
P903
P902
P901
P1
P2
P3
V.OUT
DEC/NOR
TV/VID
TU/EXT
V.IN
MUTE
TU.V.OUT
TU.A.OUT
A.IN
TR5
TR4
TR3 TU/EXT
TR1
TR7 5V REG
5V
IC3
IC2
IC1
TR6, 8, 9, 10
TR12, 13, 14
TR17
TR11
TR15
TR16
TR18
TR19
TR20
TR2
D3
R32
R31
TP21
TP22
CANAL PLUS PCB
IC102 M50455-142SP
V.OUT
V.IN
2FSC
CHARACTOR CONTROL
CHARACTOR POSITION
VR101
SCK
CS
S.IN
HOR
FROM OPERATION MI-COM
SERVO & SYS-CON CIRCUIT
PICTURE SHARPNESS
SWP
P203
GND
PB LC
SWP
REC.C
PB.Y
PBSV
REC.Y
REC.S.9V
ENVE DET
C SWP
ENVE SW
NC
NC
IDLSV
STILL.H
WP1
TP2 SWP
NORMAL : TRICK ENVE-COMP OUT
PEAKING
TR11
TR1
TR2
TR4
TR10
D5
D4
D8
PRE AMP PCB
PB.LC
REC.C
PB.Y
REC.Y
V.SYNC
C.SYNC
LPF
TR608
C638, C639 R630toR632
IC601 AN3247NK
VL702
1.07MHz EQ
EQUALIZER LEVEL
IDLSV
VR602
VIDEO EE LEVEL
VR606
WHITE CLIP
VR603
CARRIER SET
VR604
DEVIATION
C701
VL701
4.43MHz BELL FILTER
BELL FILTER
REC:ON
TR701
RECSV
TRAP
FL601
SECAM LPF
C618
MUTE
TR703
FL701
BPF 1.07MHz
C705
TR702
B/W
B/W:ON
PICTURE SHARPNESS FROM MAIN PCB IC403 20
IC602 MSM6965-3RS
CCD 1H DELAY
CLK
TR604
VR605
CCD
FL602
LPF
TR705
TR706
PB5V
VR601
VIDEO PB LEVEL
TR709
fsc 4.433619MHz OSC
X701
TR710
TR711
2FSC
FSC
TR301 FL301
OSC
VIDEO PCB
A.OUT
R308toR310 C313toC315
TWIN T fH FILTER
MUTE
EQ1+EQ2
EQ1
EQ2
222
REC EQ
TR303
REC S
REC CTRL
VR301 AUDIO PB LEVEL
VR302 AUDIO REC BIAS
IC301 BA7765AS
MAIN PCB

EE, REC | PB | REC, PB | EE, REC | PB | EE, REC | PB | PB | EE, REC | EE, REC

D E F G H I

F G H I J K

1 2 3 4 5 6 7 8

PB EE, REC PB

EXCEPT 12SK

VIDEO IN

TV/VID IC3 TR5 TR6, 8, 9, 10 TR17

P903 P1 V.OUT DEC/NOR TV/VID TR4

TR12, 13, 14 TR11 TR15 TR16 DECODER 21P SCART CONNECTOR PJ1

TR101 TR103 TR3 TU/EXT TR1 MUTE IC1 IC2

P902 P2 TU/EXT V.IN TU.V.OUT IDL12V TR60 TR7 5V REG

AUDIO IN TP21

IC102 M50455-142SP CHARACTOR CONTROL CHARACTOR POSITION VR101 FROM OPERATION MI-COM

TR18 TP22 TR19 D3 R32 TR20 R31 TV MONITOR 21P SCART CONNECTOR PJ2

TR2 IC4

CANAL PLUS PCB

P3 TU.A.OUT A.OUT A.IN P901

JP1 TR5 TR12 V.OUT TP21 TV MONITOR

P1 3/4 IC1 4/4 IC1 TR15 INV TU/EXT

P2 TR2 TP23 A.OUT 1/4 IC1 2/4 IC1 IC1:BU4066BL

CANAL PLUS PCB P3

F12SK ONLY

PB

EE, REC

LPF N3247NK

IDL5V VR606 WHITE CLIP VR603 CARRIER SET VR604 DEVIATION

IC602 MSM6965-3RS CCD IH DELAY CLK TR604 VR605 FL602 LPF CCD

C618

TR709 fsc 4.433619MHz OSC X701 TR710 TR711 2FSC FSC

A.OUT R308toR310 C313toC315 TWIN T fH FILTER 0dB MUTE EQ1+EQ2 EQ1 EQ2 222 104 36dB ALC A.IN

REC EQ IDL12V TR303 REC S 20dB REC CTRL VR301 AUDIO PB LEVEL

IDL12V VCC VCC VREG REC IC301 BA7765AS

P306 TP FOR BIAS R323 1M

WP301 AUDIO REC/PB SIDE TRAC ERASE

WP302 FULL TRAC ERASE

TR301 FL301 OSC VR302 AUDIO REC BIAS

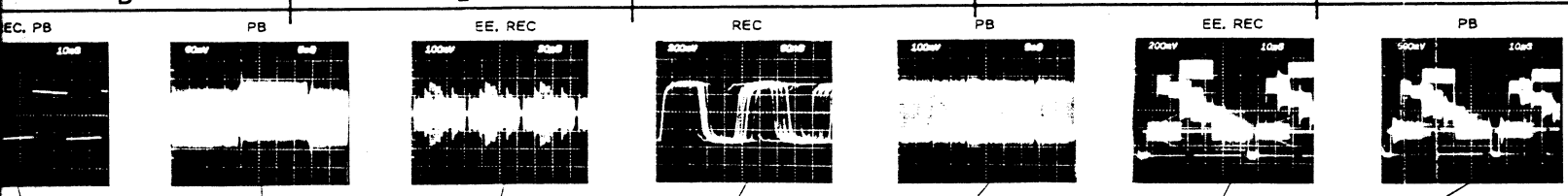
REC

VIDEO PCB MAIN PCB

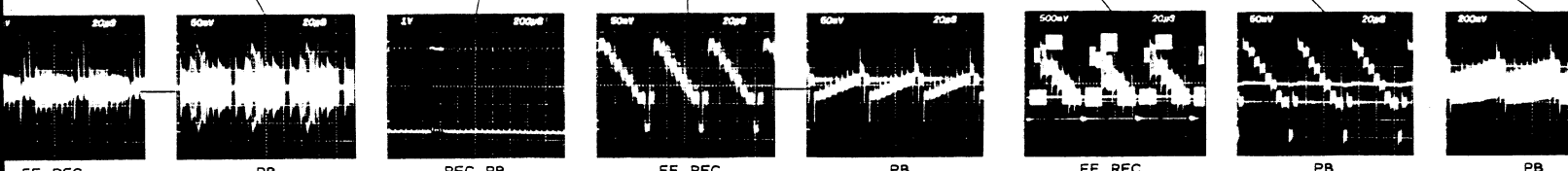
PB EE, REC PB PB EE, REC EE, REC PB

VS-F12S/F15S
VS-F12SK
VIDEO & AUDIO
BLOCK DIAGRAM
NO.4-2 V111652M

REC. PB
PB
EE. REC
REC
REC. PB
PB
PB
PB
PB
PB
PB
PB
EE, REC
ANT IN
RF OUT
RF CONVERTOR
RF IN
TUNER
V. OUT
A. OUT
IF IN
VIF UNIT
IC1 BA7252S
PB GND
SWP
CH1 CH2
H PRE AMP
L PRE AMP
REC ON
PB ON
CURRENT AMP
CHROMA AMP
PEAKING AMP
AQC
DET
TR6
TR7
TR1
TR2
TR4
P2
TP3 REC CURR
VIDEO HEAD
P.B.5V
REC9V
PB5V
REC.S9V
VR1
VIDEO REC CURRENT
REC EQ
WP5
ENVE.DET
REC.S9V
REC.Y
PB.SV
PB.Y
REC.C
SWP
PB LC
GND
SERVO & SYS-CON CIRCUIT
PRE AMP PCB
IC701 BA7107S
C724
L704
C726
C725
R727
X2
VL702
1.07MHz EQ
EQULIZER LEVEL
TR707
VR701
NOISE GATE
SYNC TIMING GATE
FL703
BPF 4.3MHz
P.B SYNC GATE
VCC
1/4
REC SYNC GATE
FL702
BPF 4.43MHz
TR708
TR703
REC.S
FL701
BPF 1.07MHz
C701
VL701
4.43MHz BELL FILTER
BELL FILTER
REC:ON
TR701
REC5V
C705
TR702
B/W
B/W:ON
TR705
IDL5V
TR706
PB5V
TR608
LPF
C638, C639
R630 to R632
IC601 AN32
VR602
VIDEO EE LEVEL
TRAP
FL601
SECAM LPF
MUTE
PICTURE SHARPNESS FROM MAIN PCB IC403
VR601
VIDEO PB LEVEL
REC
PB
REC
PB
EE, REC
PB
REC, PB
EE, REC



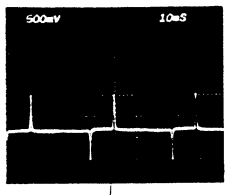
ANT IN
RF OUT
RF CONVERTOR
RF IN
TUNER BLK
V.OUT
A.OUT
TR101
TR103
IF IN
V.OUT
VIF UNIT
A.OUT
TR60
IDL12V
P903
P1
V.OUT
DEC/NOR
TV/VID
P902
P2
TU/EXT
V.IN
MUTE
TU.V.OUT
TR5
TR4
TR3
TR1
TR7
5V REG
5V
IC3
IC2
IC1
IC4
TR6, 8, 9, 10
TR12, 13, 14
TR17
TR11
TR15
TR16
TR18
TR19
TR20
D3
R32
R31
TP21
TP22
CANAL PLUS PCB
P3
TU.A.OUT
A.OUT
A.IN
P901
IC102
M50455-142SP
V.OUT
CHARACTOR CONTROL
V.IN
2FSC
SCK
I.CS
S.IN
I.SO
HOR
CHARACTOR POSITION
VR101
FROM OPERATION MI-COM
WP5
ENVE.DET
REC.S9V
REC.Y
PB 5V
PB.Y
REC.C
SWP
PB LC
GND
SERVO & SYS-CON CIRCUIT
TR7
TR2
TR4
P85V
VR1
VIDEO REC CURRENT
REC EQ
PB.LC
REC.C
PB.Y
REC.Y
V.SYNC
V.OUT
V.IN
C.SYNC
LPF
TR608
C638, C639
R630toR632
IC601 AN3247NK
VL702
1.07MHz EQ
EQULIZER LEVEL
IDL5V
VR602
VIDEO EE LEVEL
VR606
WHITE CLIP
VR603
CARRIER SET
VR604
DEVIATION
VL701
4.43MHz BELL FILTER
BELL FILTER
REC:ON
TR701
REC5V
TRAP
FL601
SECAM LPF
C618
IC602
MSM6965-3RS
CCD IH DELAY
CLK
TR604
VR605
CCD
FL602
LPF
MUTE
TR703
PICTURE SHARPNESS FROM MAIN PCB IC403
C705
FL701
BPF 1.07MHz
TR702
B/W
B/W:ON
TR705
REC:ON
TR706
PB5V
VR601
VIDEO PB LEVEL
TR709
fsc 4.433619MHz OSC
X701
TR710
TR711
2FSC
FSC
TR301
FL301
OSC
VIDEO PCB
A.OUT
R308toR310
C313toC315
TWIN T fH FILTER
0dB
MUTE
EQ1+EQ2
EQ1
EQ2
222
36dB
ALC
A.IN
REC EQ
20dB
REC CTRL
IDL12V
TR303
REC S
VR301
AUDIO PB LEVEL
VCC
VREG
REC
124
IC301
BA7765AS
P306
WP301
WP302
VR302
AUDIO REC BIAS
MAIN PCB



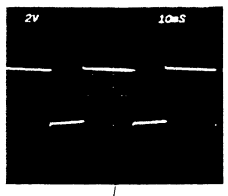
G
H
I
J
K
1
2
3
4
5
6
7
8
PB
EE, REC
PB
VIDEO IN
AUDIO IN
TV MONITOR
DECODER
21P SCART CONNECTOR
PJ1
PJ2
TR5
TR6, 8, 9, 10
TR17
TR12, 13, 14
TR11
TR15
TR16
TR4
TR3
TR1
TR101
TR103
TR60
TR7
5V REG
TR2
TR18
TR19
TR20
D3
R32
R31
TP21
TP22
TV/VID
DEC/NOR
TU/EXT
MUTE
IDL12V
5V
IC1
IC2
IC3
IC4
P903
P902
P901
P1
P2
P3
V.OUT
V.IN
TU.V.OUT
TU:A.OUT
A.OUT
A.IN
IC102
M50455-142SP
CHARACTOR CONTROL
CHARACTOR POSITION
VR101
2FSC
I.CK
I.CS
I.SO
I.SI
FROM OPERATION MI-COM
CANAL PLUS PCB
PB
EE, REC
REC
VIDEO PCB
MAIN PCB
IC602
MSM6965-3RS
CCD IH DELAY
CLK
TR604
VR605
FL602
LPF
CCD
TR709
fsc 4.433619MHz OSC
X701
TR710
TR711
2FSC
FSC
VR606
WHITE CLIP
VR603
CARRIER SET
VR604
DEVIATION
C618
IDL5V
R308toR310
C313toC315
TWIN T fH FILTER
0dB
MUTE
EQ1+EQ2
EQ1
EQ2
222
104
36dB
ALC
REC EQ
20dB
REC CTRL
TR303
REC S
VR301
AUDIO PB LEVEL
VCC
VREQ
IC301
BA7765AS
P306
TP FOR BIAS
R323
WP301
AUDIO REC/PB
SIDE TRAC ERASE
WP302
FULL TRAC ERASE
VR302
AUDIO REC BIAS
TR301
FL301
OSC
PB
EE, REC
PB
PB
EE, REC
EE, REC
PB
REC
VS-F10S/F11S
VIDEO & AUDIO
BLOCK DIAGRAM
NO.4-3 V111653M

PB CTL SIGNAL
500mV
10mS
REC
2V
HY-101
VHG-411A
C4
0.047μ/50V
HW
HV
HU
LIM
GSENS
FC
GND
HW-
HW+
HV-
HV+
HU-
HU+
NC
U
V
W
LB1807
C3
C2
C1
R3
2.7Ω
BK IHB
CTL
FSR
REF
FG GND
FG OUT
FG IN+
FG IN-1
FG IN-2
VCC
VS
RF
NC
NC
C5
0.1μ
/25V
C1toC3
0.22μ/50V
EZMP1440N
R1
R2
R1, 2
1.6Ω
CAPSTAN MOTOR
LIM12V
LIM16V
IDL5V
TR203
TR204
NORMAL → 12V
HIGH SPEED → 16V
P408
1 FWD/REV 1
2 FG 2
3 CONT 3
4 LIM 4
5 VCC 5
6 GND 6
7 CM. POWER 7
8 P GND 8
P.GND
TR402
TR403
TR401
CONTROL HEAD
WP301b
2 CTL 2
1 GND 1
CTL AMP GAIN CONTROL NORMAL/FF or RWD
CTL PB AMP
REC CTL OUT
REC DUTY
REC ON
DRUM REF COUNTER
CTL DELAY
DRUM PHASE DET
DRUM FG COUNTER
AVCC
DM PG
FF4
HEAD SELECT (2H:H) (3H:L)
DM FG
C.FG OUT
CFG
CM FG 504.45Hz
IC1 TA8424F
Vcc 16V
La
Lb
Lc
3 STATE DRIVE AMP
MATRIX
CONT AMP
HALL AMP X3
NF
5V REG
HD1
HD2
HD3
2Ω
FG
PG
IC2 NJM4558MB
1/2
2/2
TR1
25Hz
LIMIT16V
P1
8 NC
7 CONT 7
6 FG 6
5 DM. POWER 5
4 M. GND 4
3 PG 3
2 GND 2
1 IDL 5V 1
P.GND
P401
DRUM MOTOR SPEED & PHASE CONTROL
CAPSTAN MOTOR SPEED & PHASE CONTROL
TR405
CM STOP
MAIN PCB
200mV
1mS
CM CONT OUT
100mV
20mS
DM CONT OUT
2V
10mS
DM PG IN
1V
500μS
DM FG IN
f=599.79Hz
2V
CM FG

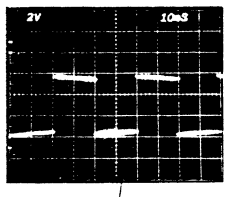
PB CTL SIGNAL



REC CTL SIGNAL



SWITCHING PULSE



TO PRE AMP PCB
WP1 (15P) OR WP3 (9P)

P203

SWP
ENV. DET
ENV. SW
IDL 5V
STILL. H
EXCEPT F10S/F11S

ENVELOPE DETECT

ENV → D/A COMPARATOR OUT
(TRACKING ERROR SIGNAL)

1/2
IC404
BA10393N

LADDER D/A CONVERTOR

R R R R R 2R
2R 2R 2R 2R 2R 2R

D/A 5 D/A 4 D/A 3 D/A 2 D/A 1 D/A 0

PB ENV COMP IN

NORMAL HEAD VS TRICK HEAD COMPARATOR OUT
H WHEN STILL MODE

LIM12V
LIM16V
IDL5V

TR203
TR204

NORMAL → 12V
HIGH SPEED → 16V

P408
FWD/REV 1
FG 2
CONT 3
LIM 4
VCC 5
GND 6
M. POWER 7
P GND 8
P. GND

CAPSTAN MOTOR DIRECTION CONTROL (FWD/REV)
CM FWD/REV

CAPSTAN MOTOR +B VOLTAGE SELECT
TRICK

TR402
TR403
CTL GAIN CONTROL
CTL AMP GAIN CONTROL &
CAPSTAN MOTOR +B VOLTAGE SELECT
CTL-G (H:HIGH GAIN)

ENV SW
STILL

CTL IN
PB.D (CTL DUTY SIGNAL IN)
SWP (SWITCHING PULSE IN)

SWITCHING POINT ADJUST
VR401
TR401

WP301b
CTL 2
GND 1

S CLOCK
S DATA
S LOAD
DATA TRANSFER

FSC (4.433MHz FROM VIDEO PCB)

SQ/SI
SI/SO
SCK
READY
TO OPERATION MI-COM (OPERATION PCB)

SYSCON MI-COM
μPD75108CW
IC403

IDL5V

SPEED (TAPE SPEED JUDGE)
H:SP L:LP

CTL AMP GAIN CONTROL NORMAL/FF or RWD

CTL AMP PB
REC CTL OUT
CTL OUT
DUTY DET
V.SYNC (NC)
C.SYNC
A.SWP (NC)
V.SWP
SW M.M
S CLOCK
S DATA
S LOAD
SPEED DET OUT (NC)

REC DUTY
REC ON
CTL DUTY DET
V SYNC SEP
TRA MM
PH DLY
SERIAL DATA DET
TAPE SPD DET
PWM GEN
60/120/0° SW LOGIC
SW MM
REC CAP REF COUNTER
CAPSTAN PHASE DET
GAIN CORR
CTL DELAY
DRUM REF COUNTER
DRUM PHASE DET
DRUM FG COUNTER
DRUM FV CONV.
FH CORR
CAPSTAN FV CONV.
FH CORR
DLY CH1 CH2 VP MM REC PB

IC401 SX2777CS
(DIGITAL SERVO)

AVCC
DM PG
FF4
HEAD SELECT (2H:H) (3H:L)
DM FG
C.FG OUT
CFG
C429 DISCHARGE (IC402 1/2)
VP OUT TO VIDEO PCB
VP MM
C427
DM PHASE ERROR
DM SPEED ERROR
CM PHASE ERROR
CM SPEED ERROR
LPF

CM FG 504.45Hz

VP-MM (QUASI-V TRIGGER SIGNAL)

LP OUT
LP/SP
TO VIDEO PCB

DRUM MOTOR STOP
DM STOP

IC402
BA15218N
2/2

DRUM MOTOR SPEED & PHASE CONTROL

IDL5V

DM UP (SPEED UP PULSE)

P1
NC
CONT 7
FG 6
DM. POWER 5
M. GND 4
PG 3
GND 2
IDL 5V 1
P401

LIMIT16V

CAPSTAN MOTOR FG
FG

CM UP (SPEED UP PULSE)

CM STOP

X2 X1
X401
4.19MHz

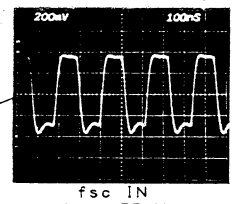
CAPSTAN MOTOR SPEED & PHASE CONTROL

TR405
CM STOP

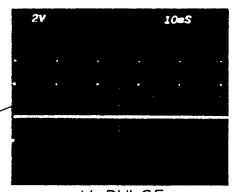
CAPSTAN MOTOR STOP

MAIN PCB

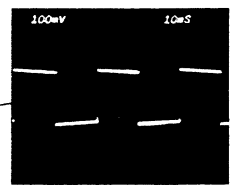
fsc IN
f=4.433MHz



V PULSE
(PB PAUSE)



BUASI-V PULSE
(PB PAUSE)



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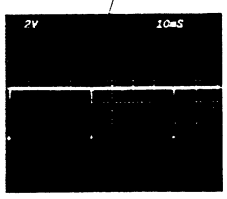
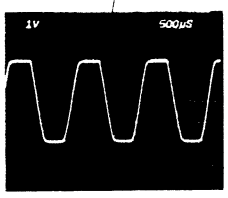
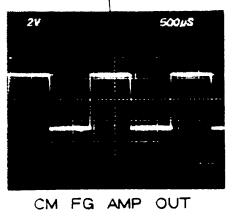


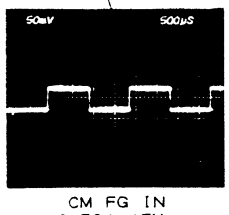
DM PG IN



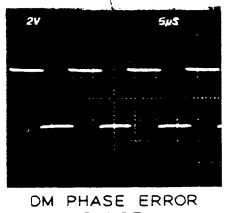
DM FG IN
f=599.79Hz



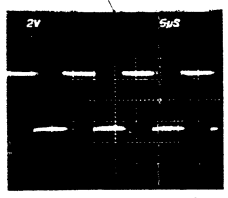
CM FG AMP OUT



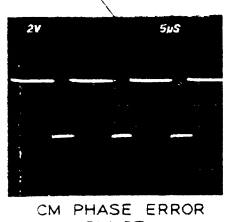
CM FG IN
f=504.45Hz



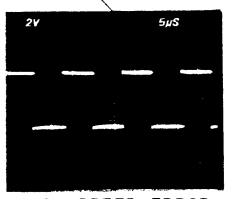
DM PHASE ERROR PULSE



DM SPEED ERROR PULSE



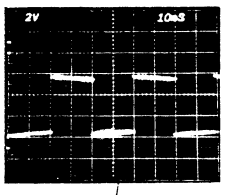
CM PHASE ERROR PULSE



CM SPEED ERROR PULSE

VS-F1
VS-F1
SERVO
BLOCK

SWITCHING PULSE



TO PRE AMP PCB
WP1 (15P) OR WP3 (9P)

P203

SWP
ENV.DET
ENV.SW
IDL 5V
STILL.H
EXCEPT F10S/F11S

ENVELOPE DETECT
1/2
IC404
BA10393N
ENV — D/A COMPARATOR OUT (TRACKING ERROR SIGNAL)

LADDER D/A CONVERTOR
R
2R

D/A 5
D/A 4
D/A 3
D/A 2
D/A 1
D/A 0
PB ENV COMP IN
NORMAL HEAD VS TRICK HEAD COMPARATOR OUT
H WHEN STILL MODE

CAPSTAN MOTOR DIRECTION CONTROL (FWD/REV)
CM FWD/REV

CAPSTAN MOTOR +B VOLTAGE SELECT
TRICK

CTL AMP GAIN CONTROL &
CAPSTAN MOTOR +B VOLTAGE SELECT
CTL-G (H:HIGH GAIN)

CTL IN

PB:D
(CTL DUTY SIGNAL IN)

SWP (SWITCHING PULSE IN)

SWITCHING POINT ADJUST
VR401

S CLOCK
S DATA
S LOAD
DATA TRANSFER

FSC
(4.433MHz FROM VIDEO PCB)

A. SWP (NC)
V. SWP
SW M.M
SPEED DET OUT (NC)

SERIAL DATA DET
TAPE SPD DET
PWM GEN
SW LOGIC
REC CAP REF COUNTER
CAPSTAN PHASE DET
GAIN CORR
DRUM FV CONV.
YH CORR
CAPSTAN FV CONV.
CM CORR
IC401 SX2777CS
(DIGITAL SERVO)

IDL5V

SPEED
(TAPE SPEED JUDGE)
H:SP L:LP

SYSCON MI—COM
μPD75108CW
IC403

SO/SI
SI/SO
SCK
READY
TO OPERATION MI-COM (OPERATION PCB)

VP MM
VP OUT TO VIDEO PCB
VP-MM
(QUASI-V TRIGGER SIGNAL)

DM PHASE ERROR
DM SPEED ERROR
CM PHASE ERROR
CM SPEED ERROR
LPF

IC402
M51218N

DRUM MOTOR STOP
DM STOP

DM UP
(SPEED UP PULSE)

CAPSTAN MOTOR FG
FG

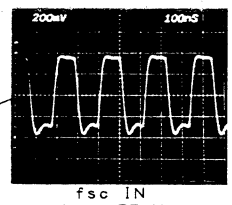
CM UP
(SPEED UP PULSE)

CM STOP

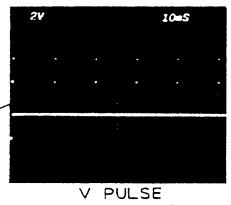
LP OUT
LP/SP
TO VIDEO PCB

X2
X1
X401
4.19MHz

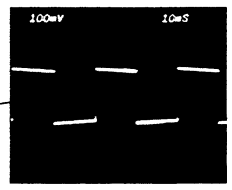
CAPSTAN MOTOR STOP



fsc IN
f=4.433MHz

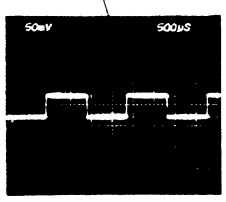


V PULSE
(PB PAUSE)

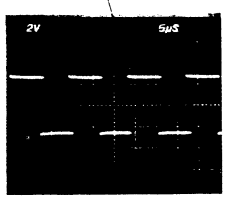


BUASI-V PULSE
(PB PAUSE)

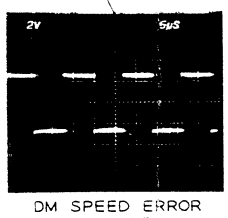
: CAPSTAN MOTOR SPEED
: CAPSTAN MOTOR PHASE
: DRUM MOTOR SPEED
: DRUM MOTOR PHASE



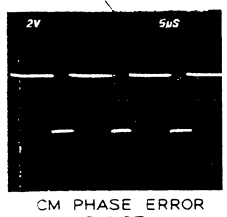
CM FG IN
f=504.45Hz



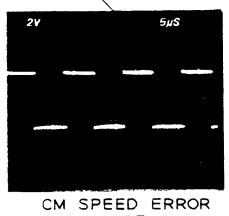
DM PHASE ERROR PULSE



DM SPEED ERROR PULSE



CM PHASE ERROR PULSE

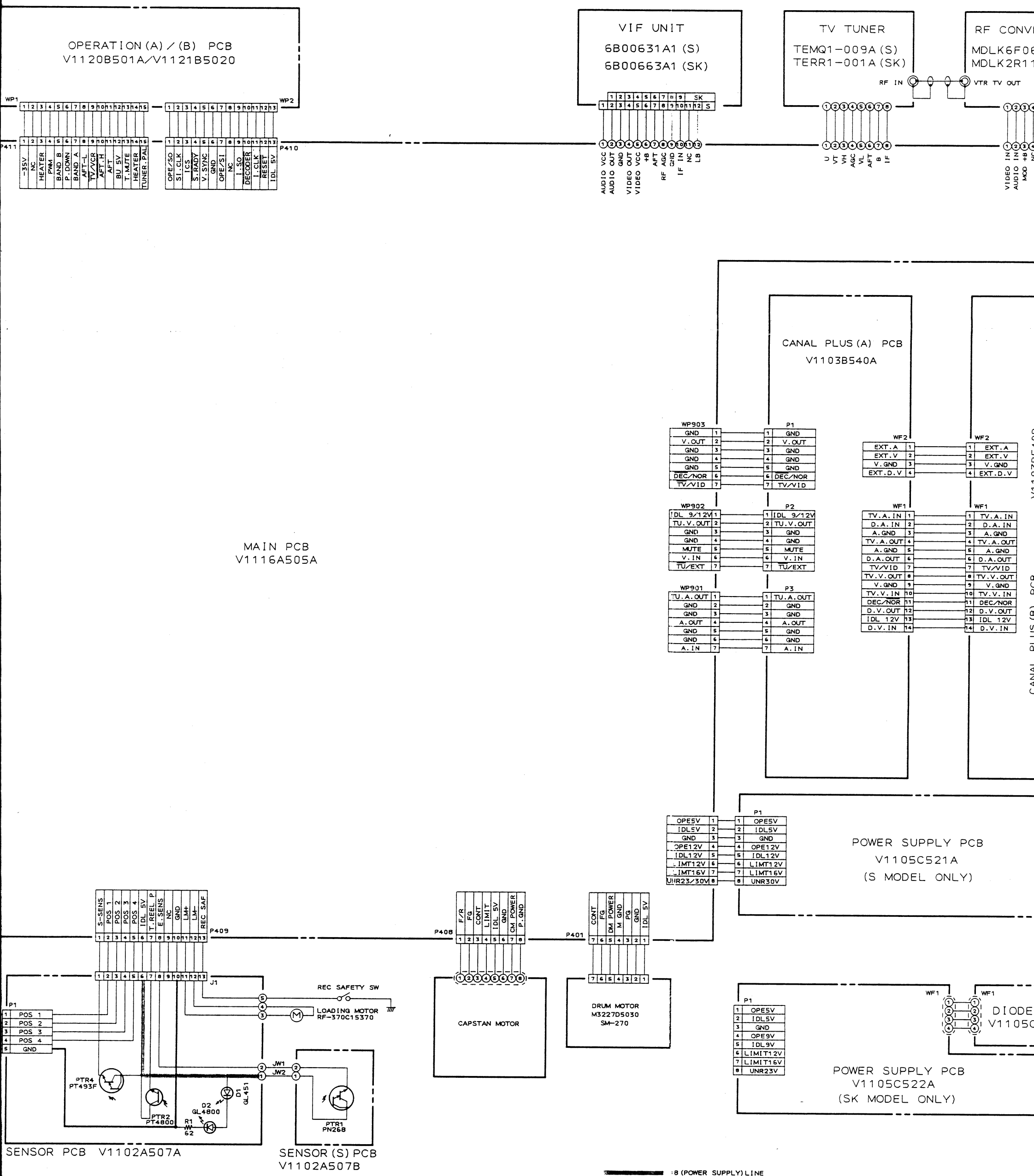


CM SPEED ERROR PULSE

VS-F10S/F11S/F12S/F15S
VS-F12SK
SERVO
BLOCK DIAGRAM
NO.4-4 V111654M

WARNING: ⚠ AND ■ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ■, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

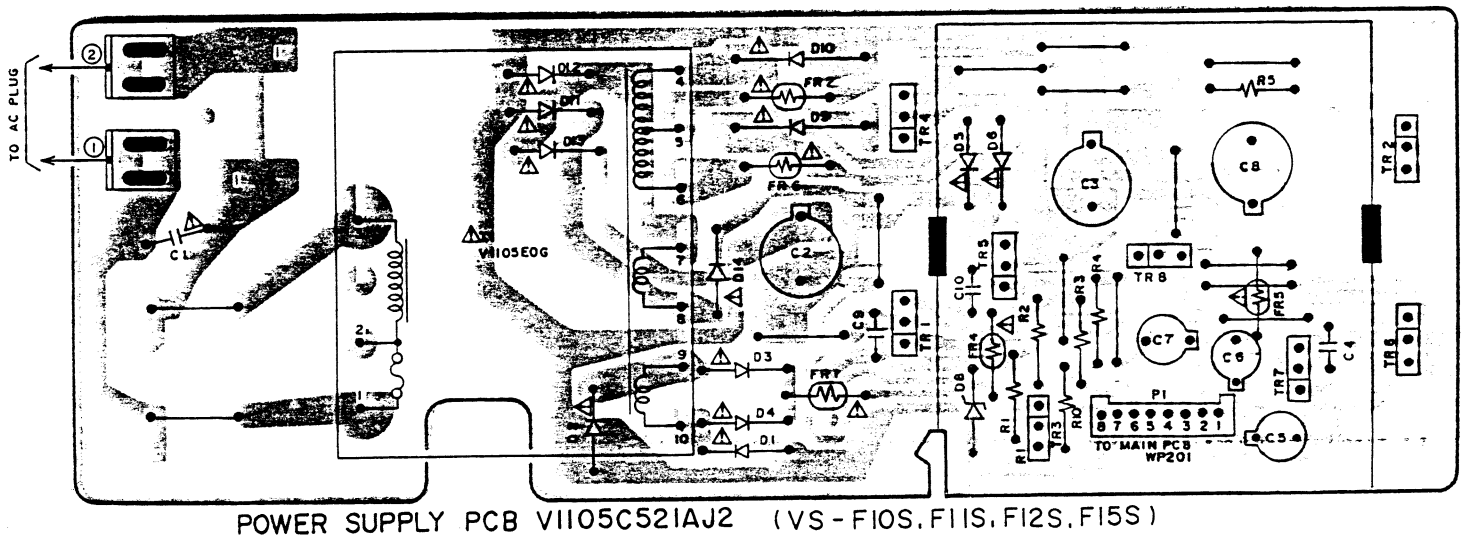

D
E
F
G
H
I
OPERATION (A) / (B) PCB
V1120B501A/V1121B5020
WP1
WP2
P411
P410
-35V
NC
HEATER
PWM
BAND B
P.DOWN
BAND A
AFT-L
TV/VCR
AFT.H
AFT
BU 5V
T.MUTE
HEATER
TUNER.PAL
OPE/SO
SI.CLK
ICS
S.RADY
V.SYNC
GND
OPE/SI
NC
I.SO
DECODER
I.CLK
RESET
IDL 5V
VIF UNIT
6B00631A1 (S)
6B00663A1 (SK)
SK
S
AUDIO VCC
AUDIO OUT
GND
VIDEO OUT
VIDEO VCC
+B
AFT
AGC
GND
IF IN
NC
LB
TV TUNER
TEMQ1-009A (S)
TERR1-001A (SK)
U
VT
VH
AGC
VL
AFT
B
IF
RF IN
VTR TV OUT
RF CONVI
MDLK6F06
MDLK2R11
VIDEO IN
AUDIO IN
MOD +B
MAIN PCB
V1116A505A
CANAL PLUS (A) PCB
V1103B540A
WP903
GND
V.OUT
GND
GND
GND
DEC/NOR
TV/VID
P1
WP902
IDL 9/12V
TU.V.OUT
GND
GND
MUTE
V.IN
TU/EXT
P2
WP901
TU.A.OUT
GND
GND
A.OUT
GND
GND
A.IN
P3
WF2
EXT.A
EXT.V
V.GND
EXT.D.V
WF1
TV.A.IN
D.A.IN
A.GND
TV.A.OUT
A.GND
D.A.OUT
TV/VID
TV.V.OUT
V.GND
TV.V.IN
DEC/NOR
D.V.OUT
IDL 12V
D.V.IN
CANAL PLUS (B) PCB
OPE5V
IDL5V
GND
OPE12V
IDL12V
LIMIT12V
LIMIT16V
UNR23/30V
UNR30V
POWER SUPPLY PCB
V1105C521A
(S MODEL ONLY)
S-SENS
POS 1
POS 2
POS 3
POS 4
IDL 5V
T.REEL P
E.SENS
NC
GND
LM+
LM-
REC SAF
P409
P408
P401
F/R
FG
CONT
LIMIT
IDL 5V
GND
CM POWER
P.GND
CONT
FG
DM POWER
M GND
PG
GND
IDL 5V
J1
REC SAFETY SW
LOADING MOTOR
RF-370C15370
CAPSTAN MOTOR
DRUM MOTOR
M3227D5030
SM-270
POS 1
POS 2
POS 3
POS 4
GND
JW1
JW2
PTR4
PT493F
PTR2
PT4800
D2
GL4800
D1
GL451
R1
W
62
PTR1
PN268
SENSOR PCB V1102A507A
SENSOR (S) PCB
V1102A507B
OPE9V
IDL9V
LIMIT12V
LIMIT16V
UNR23V
POWER SUPPLY PCB
V1105C522A
(SK MODEL ONLY)
DIODE
V1105C
: 8 (POWER SUPPLY) LINE
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN µF 50WV (M)
VS-F10
VS-F12
CONNECT

: 8 (POWER SUPPLY) LINE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50WV (M)

VS-F10S/F11S/F12S/F15S
VS-F12SK
CONNECTION DIAGRAM

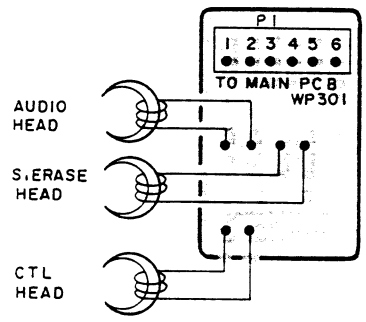
NO.16-1 V111601M



POWER SUPPLY PCB VI105C521AJ2 (VS-F10S, F11S, F12S, F15S)

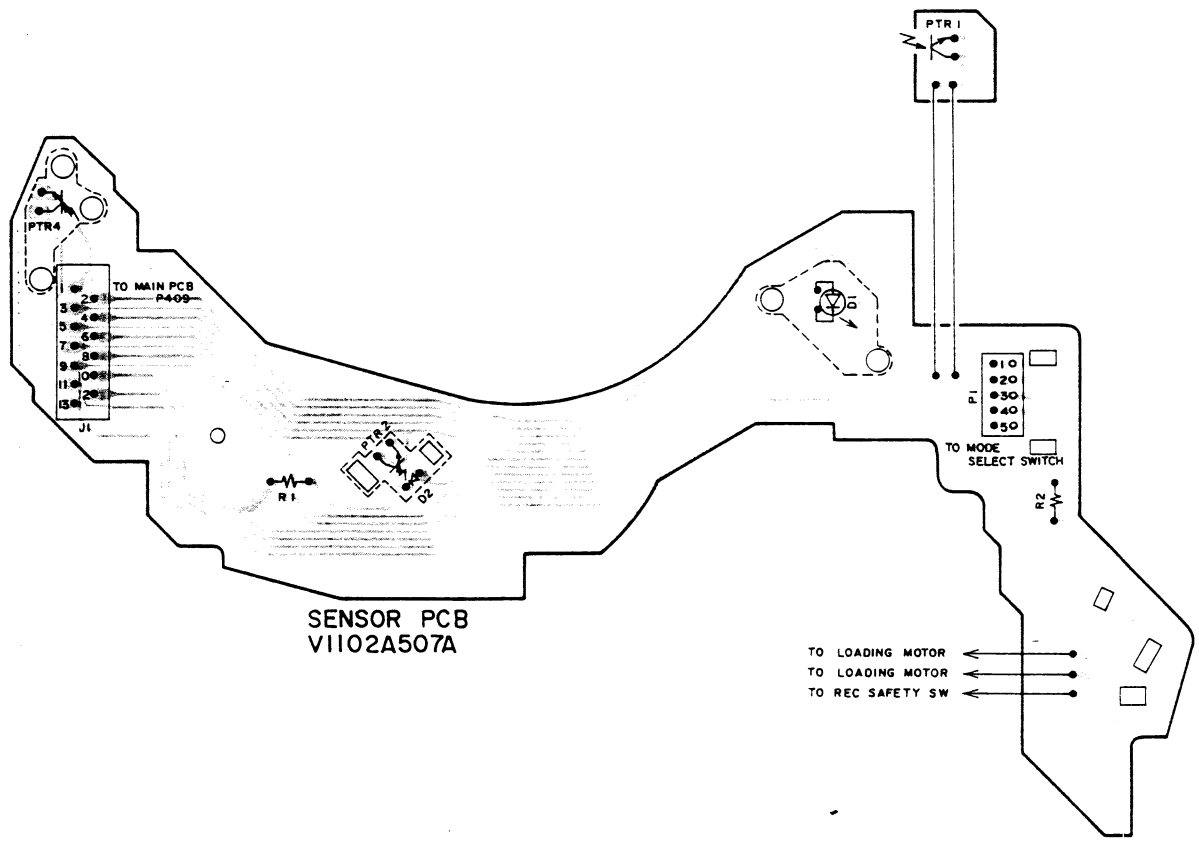
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL.
NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

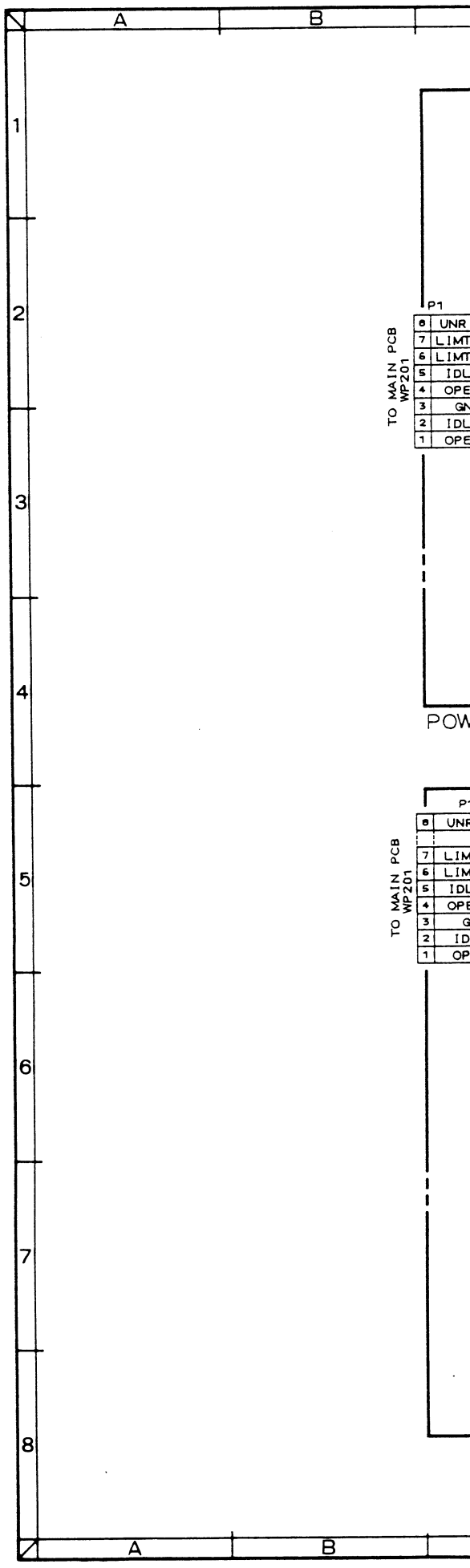


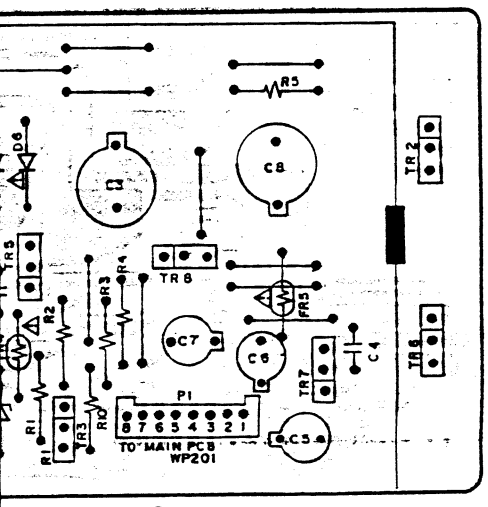
A/C HEAD PCB
VI102B5120J1

SENSOR(S) PCB
VI102A507B

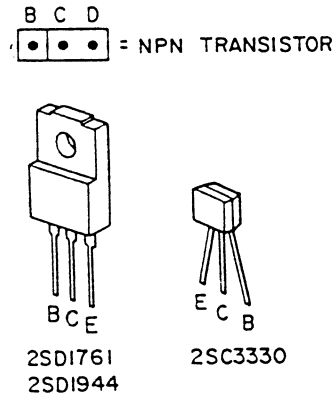


SENSOR PCB
VI102A507A

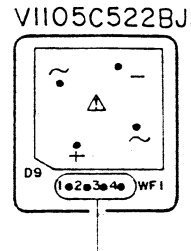


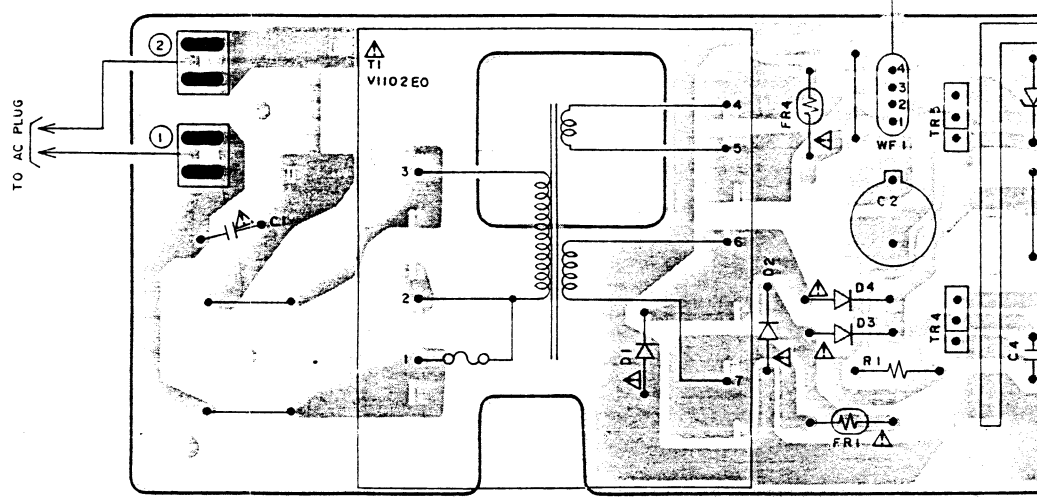


S, F12S, F15S)

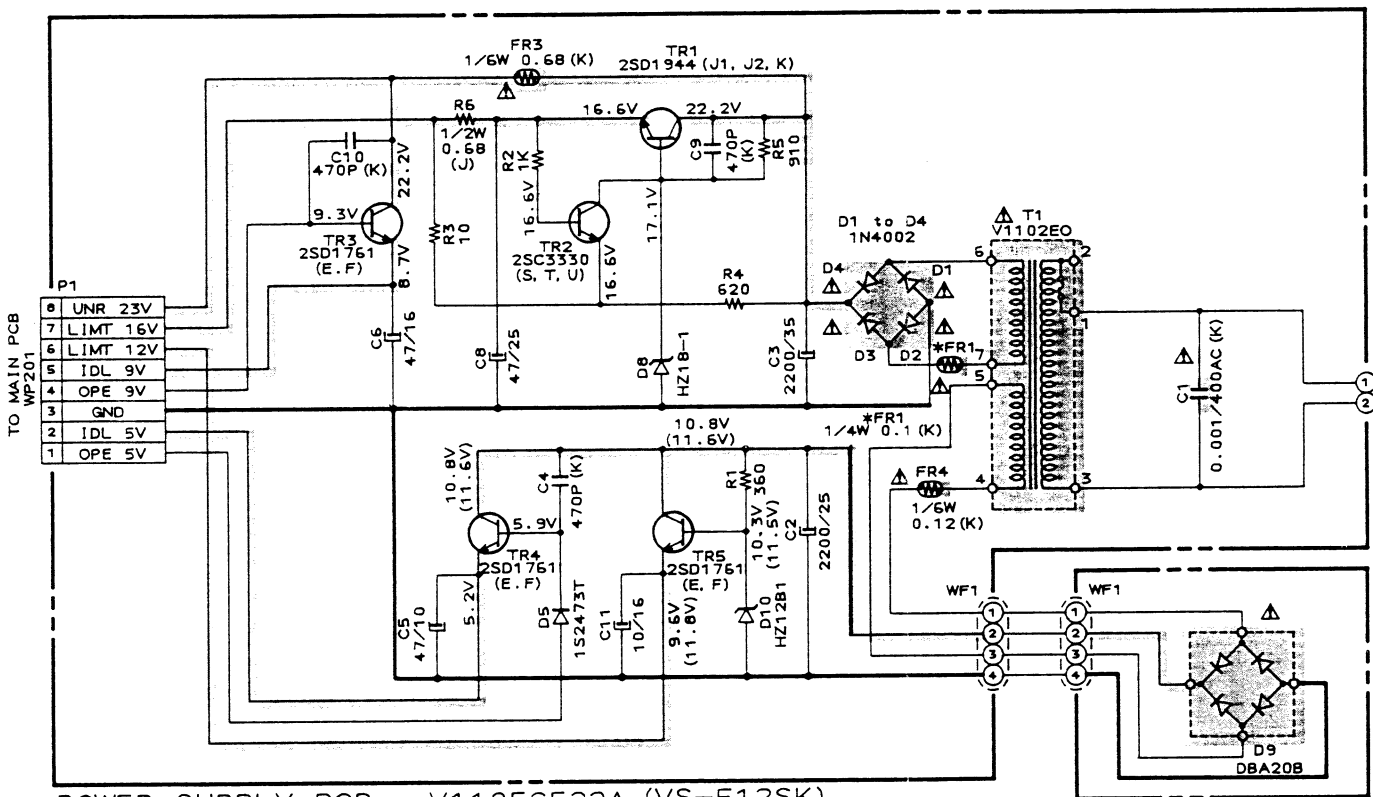


DIODE PCB
V1105C522BJ5



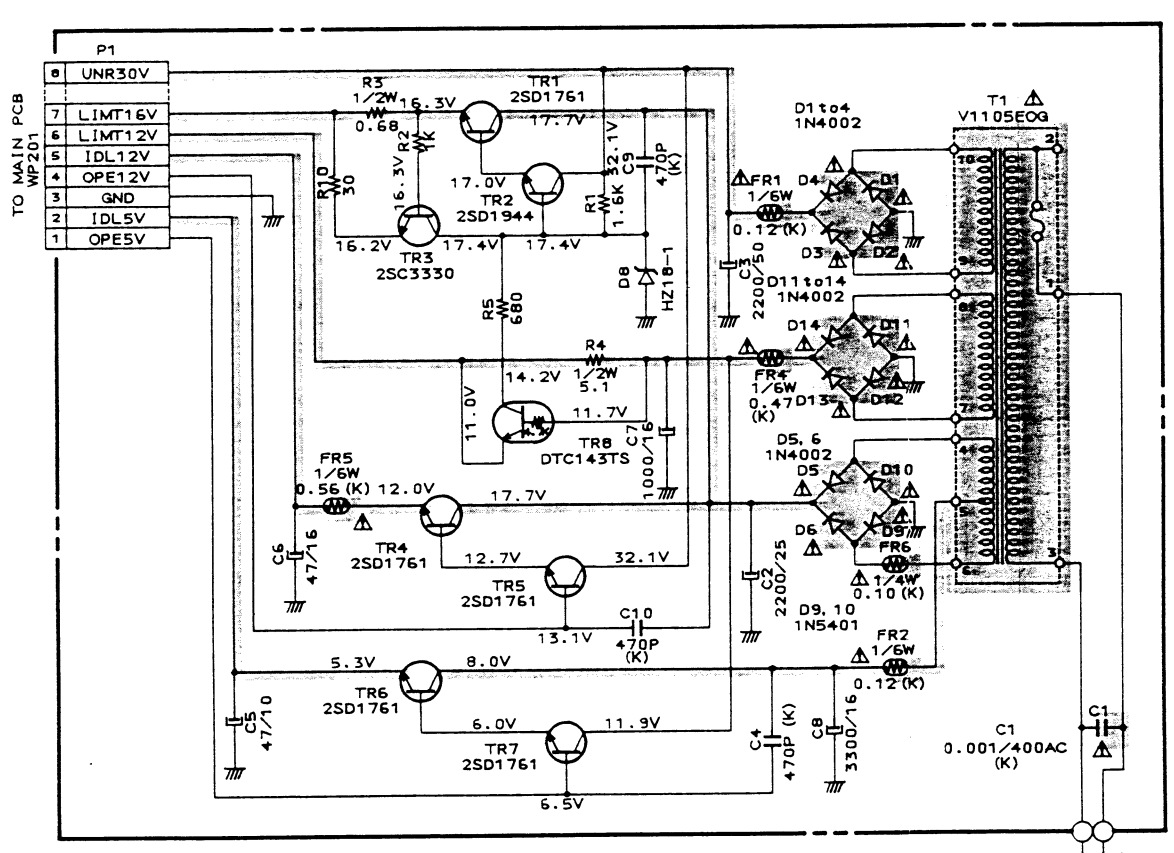


POWER PCB V1105C522A



POWER SUPPLY PCB V1105C522A (VS-F12SK)

DIODE PCB
V1105C522BJ3



POWER SUPPLY PCB V1105C521A
(VS-F10S/F11S/F12S/F15S)

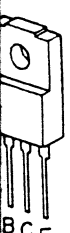
NOTE
UNLESS OTHERWISE SP
ALL RESISTORS IN OH
ALL CAPACITORS IN μ

WARNING: ⚠ AND INDICATE SA
COMPONENTS FOR CONTIN
REPLACE SAFETY CRITICA
ONLY WITH MANUFACTURER
PARTS
AVERTISSMENT: ⚠ ET , ILS IN
COMPOSTANTS CRITIQUES
POUR MAINTENIR LE DEGR
DE L' APPAREIL. NE REMPL
PIÈCES RECOMMANDEES PA

:8 (POWER SUPPL

VS-F10S/F11S/
VS-F12SK
POWER SUPPLY
SCHEMATIC DIA
NO.16-2

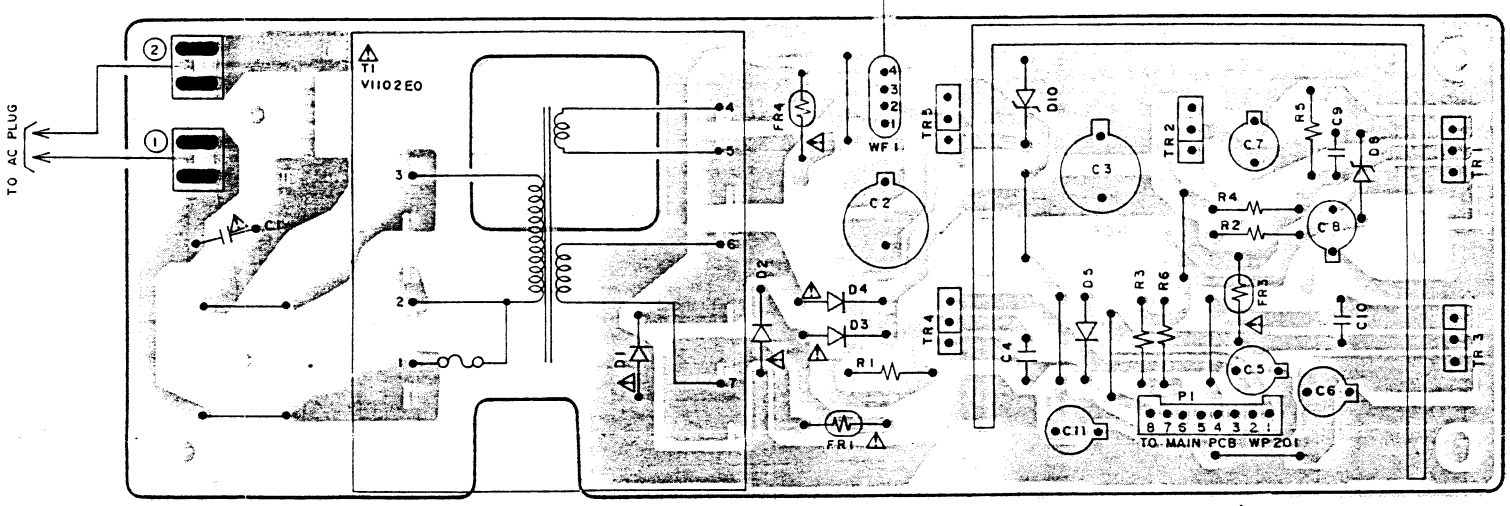
C D
• • = NPN TRANSISTOR



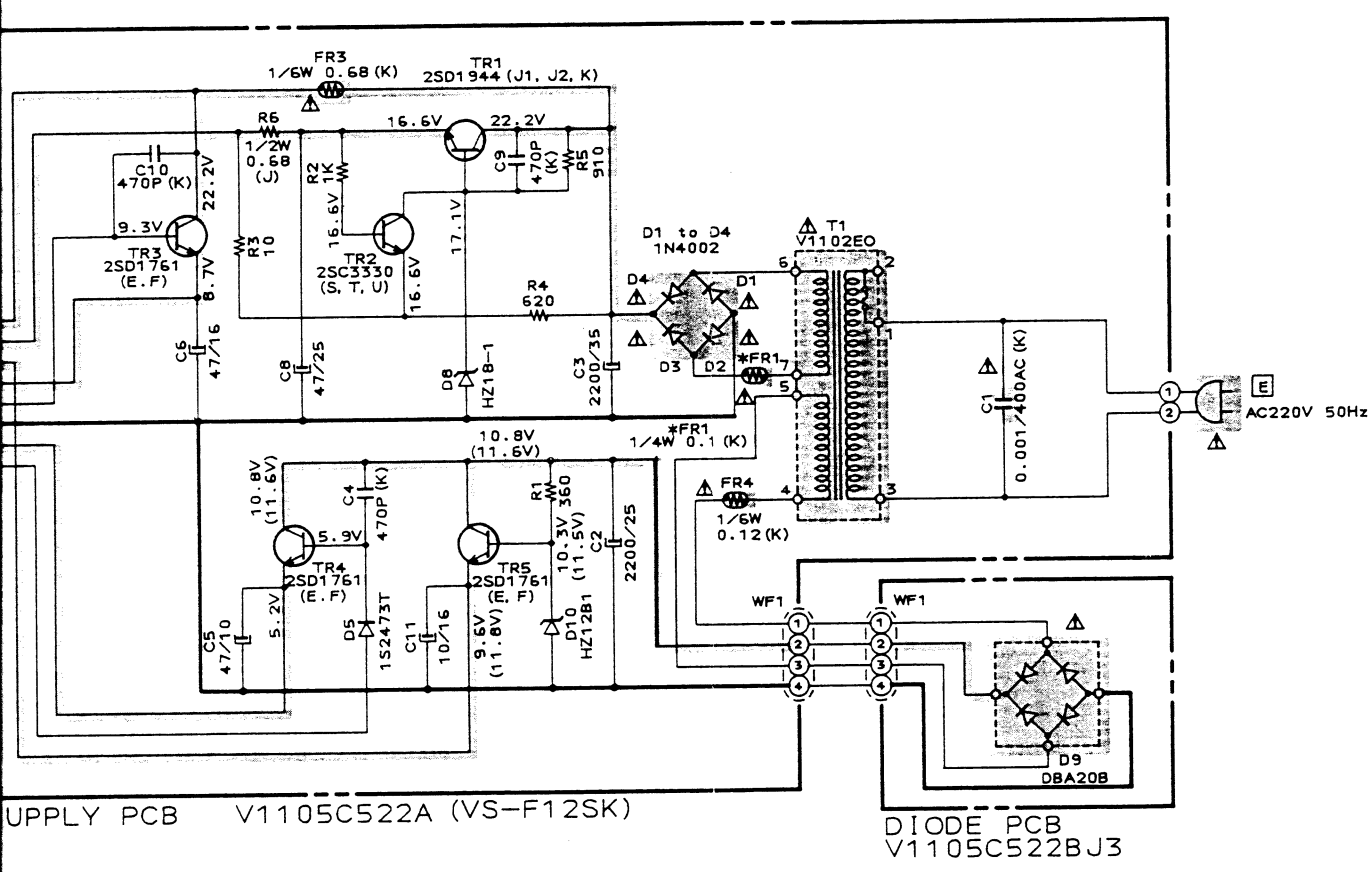
SD1761
SD1944

2SC3330

DIODE PCB
V1105C522BJ5

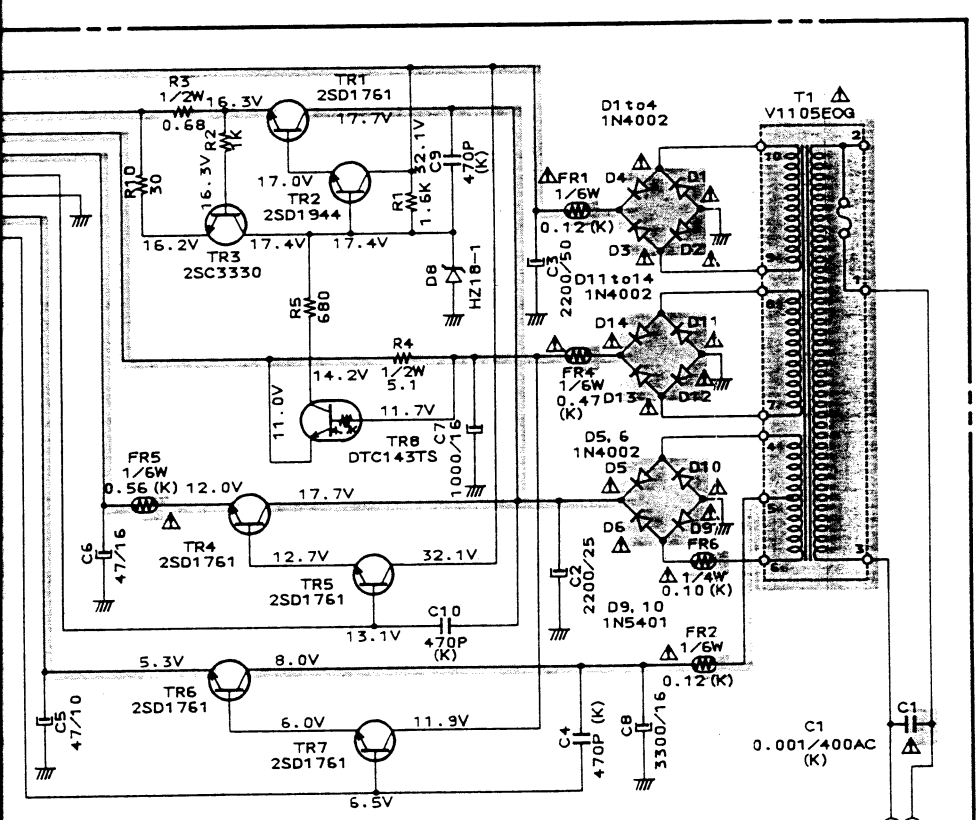


POWER PCB V1105C522AJ5 (VS-F12SK)



UPPLY PCB V1105C522A (VS-F12SK)

DIODE PCB
V1105C522BJ3



ER SUPPLY PCB V1105C521A
(VS-F10S/F11S/F12S/F15S)

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50WV (M)

WARNING: ⚠ AND INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET , ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

: B (POWER SUPPLY) LINE

VS-F10S/F11S/F12S/F15S
VS-F12SK
POWER SUPPLY
SCHEMATIC DIAGRAM
NO.16-2 V111602M

ANT IN
RF OUT
RF CONVERTER
SK:MDLK2R116B
S:MDLK6F063A
B
NC
MOD +B
A. IN
V. IN
TUNER BLK
S:TEMQ1-009A
SK:TERR1-001A
U
VT
VH
AGC
VL
AFT
B
IF
IF BLK
9P:6800663A1 (SK ONLY)
12P:6800631A1 (S ONLY)
LB
NC
IF. IN
GND
RF. AGC
AFT
+B
V. Vcc
V. OUT
GND
A. OUT
A. Vcc
JS22
S ONLY
TV.CON
R5 330
C5 47/10
TR1
2SA1317
TR2
DTA144ES
TR3
DTC144ES
D1
HZS12A2L
TV/VIDEO
TUNER.PAL
L70
S:0.56
SK:1.5
TR60
2SA1317
R62 3K
R60 +70
R61 560
C44 0.01/16 (N)
TR32
2SA1317
R34 S:1/6W 1K SK:1/6W 560
SK ONLY
TR11
2SA1317
TR10
2SC2926
IC10
LS631
IC20
LA7910
UHF
VH
BAND B
BAND A
GND
VCC2
VL
VHYP
VCC1
TR31
2SC3330
TR30
2SA1317
S ONLY
TR41
2SD2159
R41 1/6W 680
JS45
JS41
JS30
TR33
DTC114ES
AFT
BAND B
BAND A
AFT.E
JS42
TR42
2SD2159
TR303
2SA1425
R42 1/6W 680
R331 10K
R332 3.3K
C331 0.33/50
D43
HZS9C3L
C46 0.01/16 (N)
IDL9/12V
IDL5V
C201 470P (K)
IC201
M5218AL
R203 1K
R204 1K
C203 47/6.3
C204 10/16
D204
R230 1/6W 100
D212
R221 1/6W 15 (F)
C202 470P (K)
D211
C205 10/50
R205 1/6W 1K
D203
HZS5.1B3S
R207 2.4K (F)
R209 1/6W 470K
S ONLY
R210 470K
R208
S:1/6W 3K (F)
SK:1/6W 1.8K (F)
R212 10K
R213 10K
TR205
2SD1292
R214 270
TR206
2SA1317
R215 220
R216 10K
TR207
2SC3330
D207
HZS4B2
P.DWN
C325 22/16
C324 0.0015/16
C326 0.0033/16
R318 1/6W 39K
TR301
2SC3330
FL301
V1102
C327 0.0082/100
C328 1/50
VR302 47K
REC BIAS LEVEL
TP REC BIAS
P306
R323 10
C302 0.001 (K)
R301 68K
BA7765AS
REC
VREG
VCC
REC CTRL
20dB
IC 301
PB
EQ1
EQ2
R305 3.9K
R303 3.9K
C303 1/50
R325 1/6W 220
R326 12K
C305 0.01/16 (N)
R302 330K
C306 1/50
PB LEVEL
VR301 10K
C334 0.01/16 (N)
C308 0.001 (K)
R304
C332 47/16
R334 47K
R324 47K
R317 1/6W 27K
C319 0.012 (J)
R315 1/6W 330
C323 47/16
L302 2.7m (J)
C321 1/50
C320 1/50
L301 10m (J)
C61 0.0022/16 (N)
C45 47/16
S ONLY
D3
D4
REC.S
PB
EE
WP201
OPE5V
IDL5V
GND
OPE9/12V
IDL9/12V
LIMIT12V
LIMIT16V
UNR23V
TO POWER PCB P1
UNR16V
TUNER.PAL
DECODER
T.MUTE
AFT.E
TV/VIDEO
BAND A
BAND B
PWM
AFT
P.DWN
LIMT15V
DM.PW
GND
CM.PW
P.GND
HI.SPEED
IDL5V
+37V
BUP5V
TO MAIN PCB (2/2)
P302
FEH
GND
TO FE HEAD PCB
WP301a
SEH
A/C REC
GND
A/C PB
TO A/C HEAD PCB
P1
EXCEPT F10S/F11S
F10S/F11S
:B (POWER SUPPLY) LINE
:AUDIO IN (REC, E-E) SIGNAL LINE
:AUDIO OUT (PB, E-E) SIGNAL LINE
:VIDEO IN (REC, E-E) SIGNAL LINE
:VIDEO OUT (PB, E-E) SIGNAL LINE
WARNING: ⚠ AND ▬ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS
AVERTISSMENT: ⚠ ET ▬, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

D E F G H I J

IF BLK
9P:6800663A1 (SK ONLY)
12P:6800631A1 (S ONLY)

LB NC IF.IN GND RF.AGC AFT +B V.Vcc V.OUT GND A.OUT A.Vcc

TO CANAL PLUS (A) PCB P1, P2, P3

P901: TU AUDIO OUT, GND, GND, AUDIO OUT, GND, GND, AUDIO IN
P902: IDL9/12V, TU VIDEO OUT, GND, GND, T.MUTE, VIDEO IN, TU/EXT
P903: GND, VIDEO OUT, GND, GND, GND, DEC/NOR, TV/VIDEO

JS22 S ONLY
JS48 SK ONLY
JS30 S ONLY
JS45 JS41 SK ONLY

C110 10/16
C62 1/50
R5 330
C61 0.0022/16 (N)
C40 0.01/16 (N)
S:100/16 SK:47/10
L70 00 S:0.56 SK:1.5
TUNER.PAL
R60 470
R61 560
R62 3K
TR60 2SA1317
S ONLY TR49 2SD2159
R49 1/6W 680
C49 100/16
*C47 S:330/16 SK:47/10
C44 0.01/16 (N)
R34 S:1/6W 1K SK:1/6W 560
TR30 2SA1317
TR31 2SC3330
R35 S:1/6W 1.2K SK:1/6W 470
R36 100K
R30 1/6W 390K
R31 1/6W 330K
R32 1/6W 68K
C30 0.047 (J)
S ONLY TR41 2SD2159
R41 1/6W 680
R67 75
L102 100
R110 1/6W 1K
R111 1K
R112 1/4W 470
R113 15K
TR101 2SC3330
TR103 2SA1317
R105 Var 1.5K
R114 6.8K
C108 100/10
C107 47/16
C118 0.01/16 (N)
C182 33/6.3 (BP)
T.MUTE 0V
TR105 DTC144ES
C60 0.01/16 (N)
R66 4.7K
TR62 DTC114WS
D60 1S2473
C311 1/50
R328 1/6W 330
C332 47/16
R334 47K
R315 1/6W 330
R312 2.7K
C319 0.012 (J)
R324 47K
R317 1/6W 27K
R311 1/6W 7.5K
C316 10/16
C325 22/16
C324 0.0015/16
C326 0.0033/16
R318 1/6W 39K
TR301 2SC3330
FL301 V1102
C327 0.0082/100 (J)
C328 1/50
VR302 47K REC BIAS LEVEL
IDL9/12V
INT/EXT
SP
C335 4.7/50
R123 1/6W 10K
R121 1K
R120 1.8K
R119 680
C119 20P (J)
VR101 3.3K CHARACTOR POSITION
C181 0.022/25 (Z)
R122 1/6W 4.7K
R126 6.2K
R125 2.7K
R124 6.2K
TR110 2SC3330
D101
IC102 M50455-142SP
CBIN RS.IN
LECHA VDD.A
LEBK RS.OUT
V.IN CB.OUT
V.OUT
VSS.A
SIN
CS
NT./PAL
OSC2 OSC.OUT
OSC1 OSC.IN
AC HOR
SCK VERT
VSS.D VDD.D
ICLK
R146 1/6W 10K
R130 4.7K
R132 1.5K
R131 10K
L106 00 33
C130 39 (J)
R138 1/6W 22K
D102
R137 1/6W 4.7K
D107
TR107 2SC3330
TR109 DTC114ES
TR106 DTC143TS
TR113 2SA1317
R149 470
C115 1/50
C125 47/6.3
C131 0.01/16 (N)
C183 220P (K)
C180 0.01/16 (N)
R129 10K
D106
L104 2.2
COULEUR N/B SW1
R156 8.2K
R118 10K
TR111 DTC144ES
D301 1S2473T-77
D302
R320 10K
R321 1/6W 470
TR304 2SB1425
TR306 2SA1317
C116 0.01/16 (N)
C120 47/6.3
C333 0.01/16 (N)
A.MUTE
PB
EE

IC 301 BA7765AS
REC VREG VCC VCC REC CTRL EQ1 EQ2 EQ1+EQ2 MUTE
REC PB EE EQ1 EQ2 ALC 36dB 20dB 124 104
R305 3.9K
R303 3.9K
C303 1/50
R325 1/6W 220
R326 12K
C306 1/50
C305 0.01/16 (N)
R302 330K
VR301 10K PB LEVEL
C334 0.01/16 (N)
C308 0.001 (K)
R306 1/6W 51K
R304 1K
R327 1/6W 1M
C310 47/16
*R307 S:1/6W 33K SK:1/6W 20K
C312 4.7/50
C315 100P (K)
R309 100K
R308 100K
C313 100P (K)
C314 200P (J)
R310 47K
R335 68K
D306
TP REC BIAS
P306
R323 10
C302 0.001 (K)
R301 68K
C304 33/16

S ONLY D3 D4

P302: FEH, GND — TO FE HEAD PCB
WP301a: SEH, A/C REC, GND, A/C PB — TO A/C HEAD PCB P1
P203: STILL H, IDL5V, ENV.SW, C.SWP, ENV.DET, REC.S.9, REC.Y, PB5V, PB.Y, REC.C, SW.P, PBL.C, GND
EXCEPT F10S/F11S
F10S/F11S
TO PREAMP PCB

STILL.H, A.MUTE, V.SYNC, INT/EXT, PB, REC.S, EE, S.CLK, ENV.DET, SWP, ICLK, I.SO, I.CS, ENVSW, IDL9V, FSC
TO MAIN PCB (2/2)

MAIN PCB
V1116A505A

INDICATED VOLTAGES ARE MEASURED IN "PB MODE" WITH SK MODEL.

NOTE
UNLESS
ALL RE
ALL CA
ALL IN
ALL DI

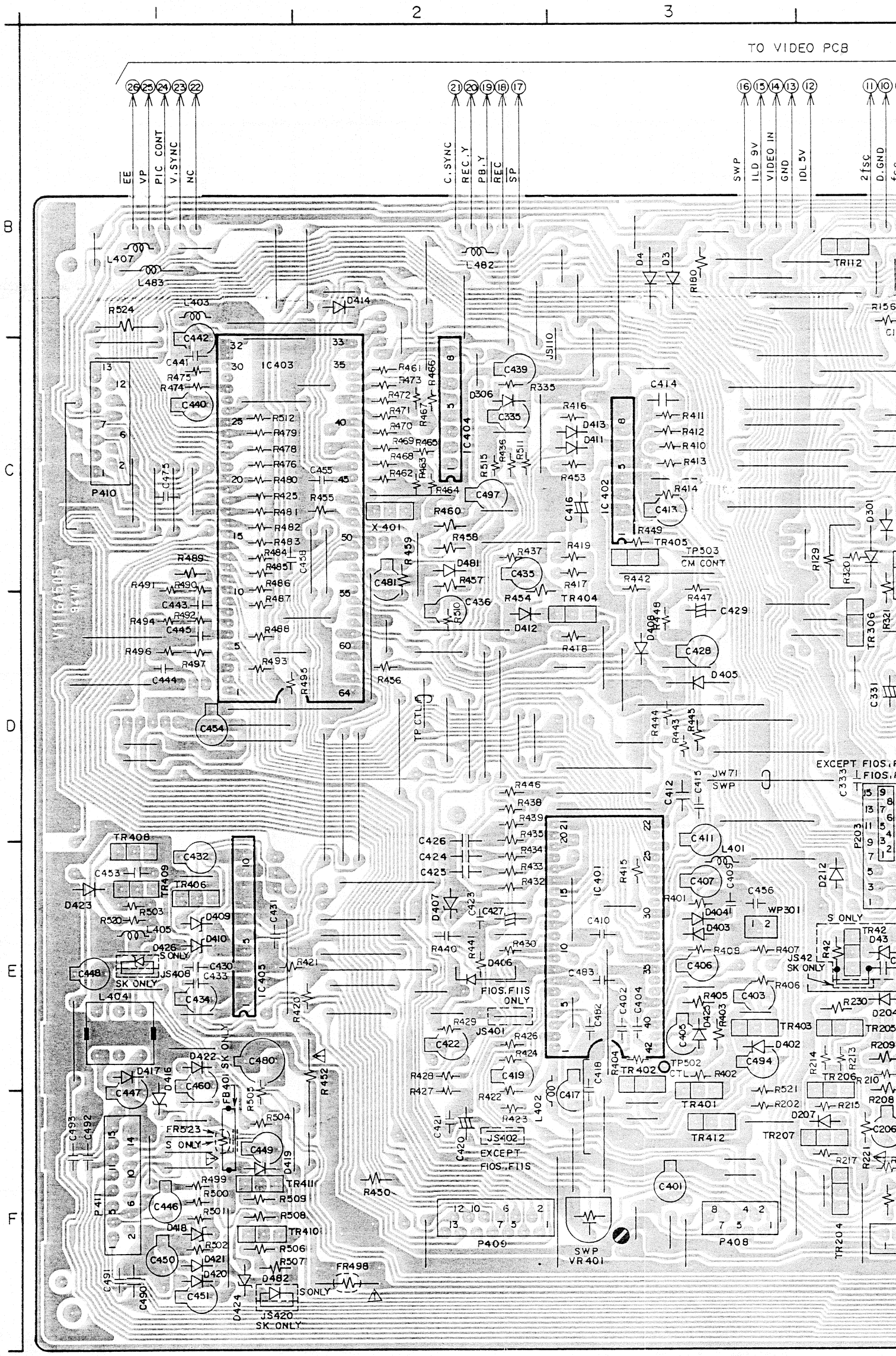
WARNING: ⚠ AND ▨ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS
AVERTISSMENT: ⚠ ET ▨, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

E
IGNAL LINE
IGNAL LINE
IGNAL LINE
IGNAL LINE

VS-F10S
VS-F12S
MAIN (1/
SCHEMAT

D E F G H I J

TO CANAL PLUS (A) PCB P1, P2, P3
P901
TU AUDIO OUT
GND
GND
AUDIO OUT
GND
GND
AUDIO IN
P902
IDL 9/12V
TU VIDEO OUT
GND
GND
T.MUTE
VIDEO IN
TU/EXT
P903
GND
VIDEO OUT
GND
GND
GND
DET/NOR
TV/VIDEO
C110 10/16
C62 1/50
*C47
L102 100
R110 1/6W 1K
R111 1K
R112 1/4W 470
R113 15K
TR101 2SC3330
TR103 2SA1317
C107 47/16
C118 0.01/16 (N)
C182 33/6.3 (BP)
R105 1.5K
R114 6.8K
C108 100/10
VIDEO IN
R67 75
T.MUTE
TR105 DTC144ES
C60 0.01/16 (N)
R66 4.7K
TR62 DTC114WS
D60 1S2473
R328 1/6W 330
C311 1/50
GND
GND
GND
INT/EXT
L105 2.2
C316 10/16
C131 0.01/16 (N)
R149 470
TR113 2SA1317
R150 47
VIDEO OUT
SP
IC102 M50455-142SP
R130 4.7K
R135 10K
C130 39 (J)
L106 33
R138 1/6W 22K
D107
D102
R137 1/6W 4.7K
TR107 2SC3330
TR106 DTC143TS
TR109 DTC114ES
R132 1.5K
R136 1/6W 10K
C115 1/50
C125 47/6.3
C124 0.01/16 (N)
GND
R122 1/6W 4.7K
R126 6.2K
R125 2.7K
R124 6.2K
TR110 2SC3330
D101
R123 1/6W 10K
R121 1K
R120 1.8K
R119 680
C335 4.7/50
C181 0.022/25 (Z)
COULEUR
N/B
SW1
R181 1/6W 270
B/W
C183 220P (K)
C119 20P (J)
VR101 3.3K
CHARACTOR POSITION
C180 0.01/16 (N)
2fsc
C.SYNC
R129 10K
D106
ICLK
L104 2.2
IDL5V
R146 1/6W 10K
R156 8.2K
REC C
PB.L.C
SWP (MC)
R180 1/6W 910
PB Y
REC Y
D302
R118 10K
TR111 DTC144ES
D301 1S2473T-77
R320 10K
TR304 2SB1425
R321 1/6W 470
TR306 2SA1317
C116 0.01/16 (N)
C120 47/6.3
fsc
IDL9V
PB5V
A.MUTE
PB
C333 0.01/16 (N)
GND
TO VIDEO PCB
MAIN PCB
V1116A505A
INDICATED VOLTAGES ARE MEASURED IN "PB MODE" WITH SK MODEL.
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL INDUCTORS IN μH (K)
ALL DIODES ARE 1SS131T
REC.V
PB5V
PB.Y
REC.C
SW.P
PBL.C
GND
WP PCB
STILL.H
A.MUTE
V.SYNC
INT/EXT
PB
EE
S.CLK
ENV.DET
SWP
ICLK
I.SO
I.CS
ENVSW
IDL9V
FSC
TO MAIN PCB (2/2)
VS-F10S/F11S/F12S/F15S
VS-F12SK
MAIN (1/2)
SCHEMATIC DIAGRAM
NO.16-3 V111603M


TO VIDEO PCB
EE
VP
PIC CONT
V.SYNC
NC
C.SYNC
REC.Y
PB.Y
REC
SP
SWP
ILD 9V
VIDEO IN
GND
IDL 5V
2fsc
D.GND
L407
L483
L403
L482
D414
R524
C442
C441
R475
R474
C440
IC403
P410
C475
C455
R455
C458
R489
R491
R490
C443
R492
R494
C445
R496
R497
C444
C454
R495
X-401
C481
R459
R460
R458
D481
R457
C436
R510
R456
TP CTL
C497
R464
IC404
R461
R473
R472
R471
R470
R469
R468
R462
R463
R465
R466
R467
JS110
C439
R335
D306
C335
R515
R436
R511
C416
IC402
R416
D413
D411
R453
C414
R411
R412
R410
R413
R414
C413
R449
TR405
TP503
CM CONT
R442
C435
R437
R419
R454
R417
TR404
D412
R418
R447
C429
D408
R448
C428
D405
R444
R443
R445
TR306
R321
R320
D301
R129
C331
TR112
R160
D4
D3
R156
JW71
SWP
EXCEPT FIOS,F
FIOS,F
C333
C412
C415
R446
R438
R439
R435
R434
R433
R432
C426
C424
C425
C411
L401
C407
C409
C456
WP301
D212
P203
S ONLY
TR42
D43
JS42
SK ONLY
R42
R406
R230
D204
TR205
R209
R214
R213
TR206
R210
R208
C206
R217
R221
TR204
C401
P408
P409
SWP
VR401
TR408
C432
C453
TR409
TR406
D423
R503
R520
L405
D409
D410
D426
S ONLY
JS408
SK ONLY
C448
C430
C433
C434
L404
C431
IC405
R421
R420
D407
C423
C427
R440
R441
R430
D406
FIOS,F11S
ONLY
C410
IC401
R415
R401
D404
D403
R408
R407
C406
C403
C405
D425
R403
TR403
D402
C494
TR402
TP502
CTL
R402
TR401
TR412
R404
C422
R429
JS401
R426
R424
C419
R428
R427
R422
C421
R423
L402
C417
C418
JS402
EXCEPT
FIOS,F11S
R450
C480
D422
C460
D417
D416
C447
FB401
SK ONLY
R505
R452
R504
FR523
S ONLY
C449
D419
TR411
R499
R500
R509
R501
R508
C446
D418
TR410
R502
R506
D421
R507
C450
D420
C451
D424
D482
S ONLY
FR498
JS420
SK ONLY
C491
C490
C493
C492
P411
R521
R202
R215
D207
TR207
C494
C496
C498
C499
C500
C501
C502
C503
C504
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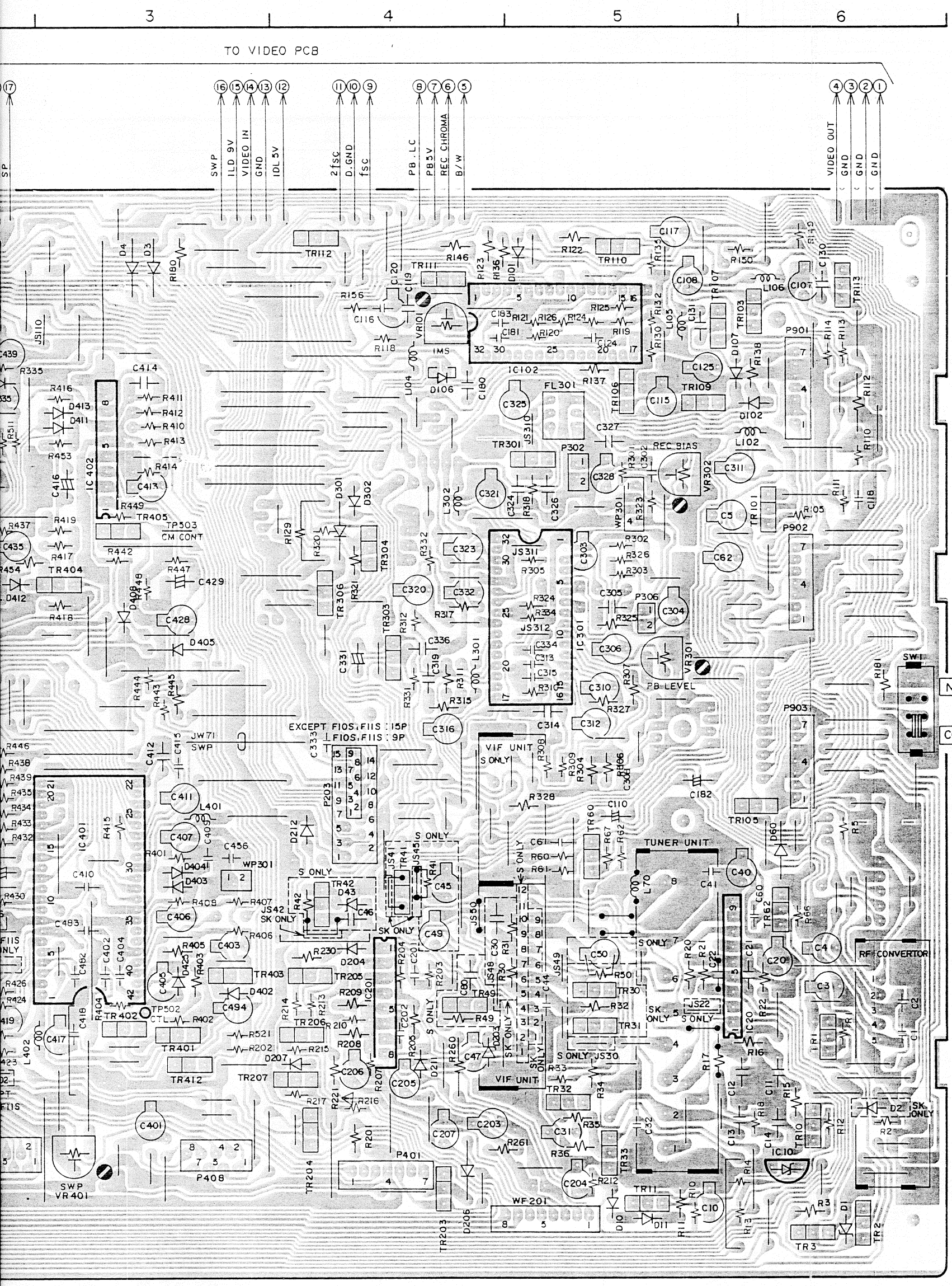
C537



PRINCIPAL PA

ICS
IC10.....
IC20.....
IC102.....
IC201.....
IC301.....
IC401.....
IC402.....
IC403.....
IC404.....
IC405.....

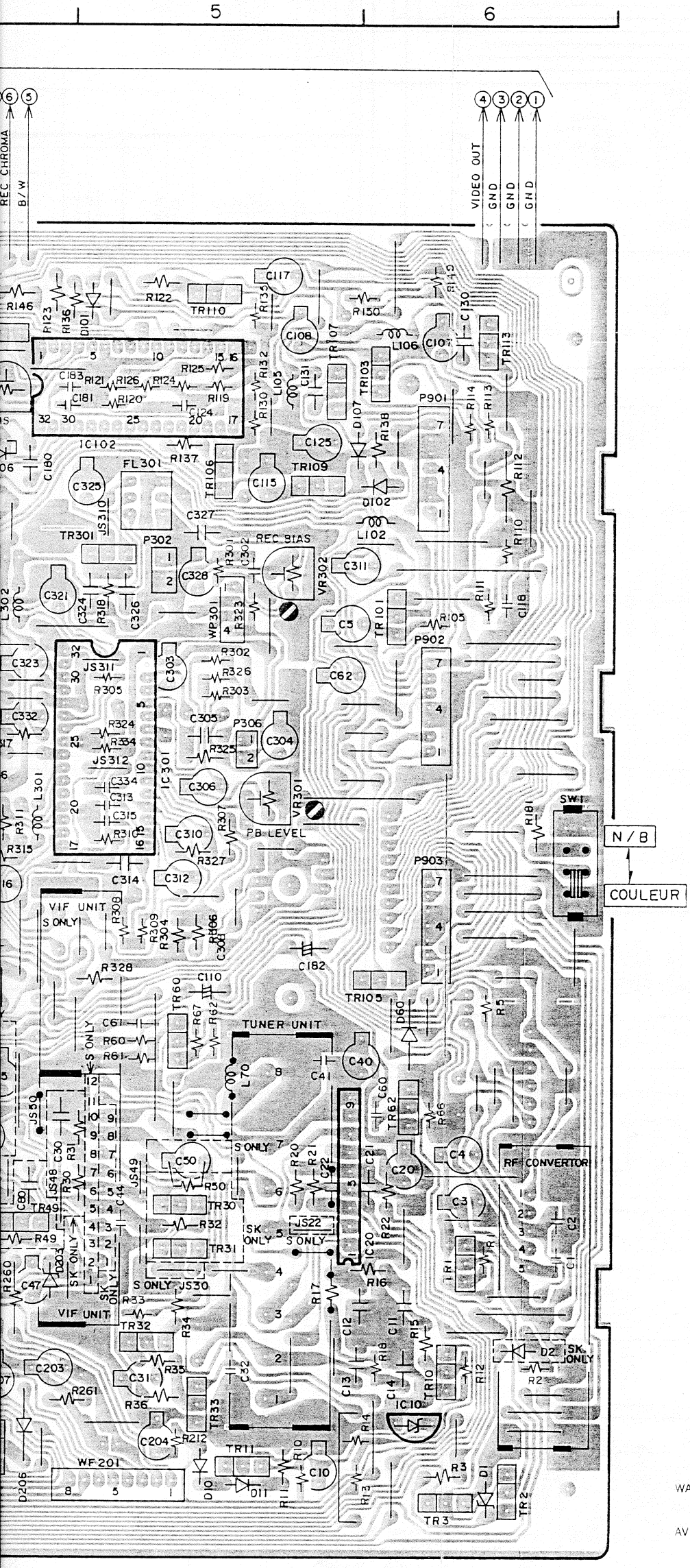
CONNECTORS
P203.....
P302.....
P306.....
P408.....
P409.....
P410.....
P411.....
P901.....
P902.....
P903.....
WP301.....
WP301.....
WF201.....

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONEN
REPLACE SAFETY CRITICAL COMPONENTS
RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CR
POUR MAINTENIR LE DEGRE DE SECURITE
NE REMPLACER QUE DES PIECES RECOMM

MAIN PCB V1116A505A

* S ONLY → VS-F10S, F11S, F12S, F15S ONLY
* SK ONLY → VS-F12SK



* S ONLY → VS-F10S, F11S, F12S, F15S ONLY
* SK ONLY → VS-F12SK

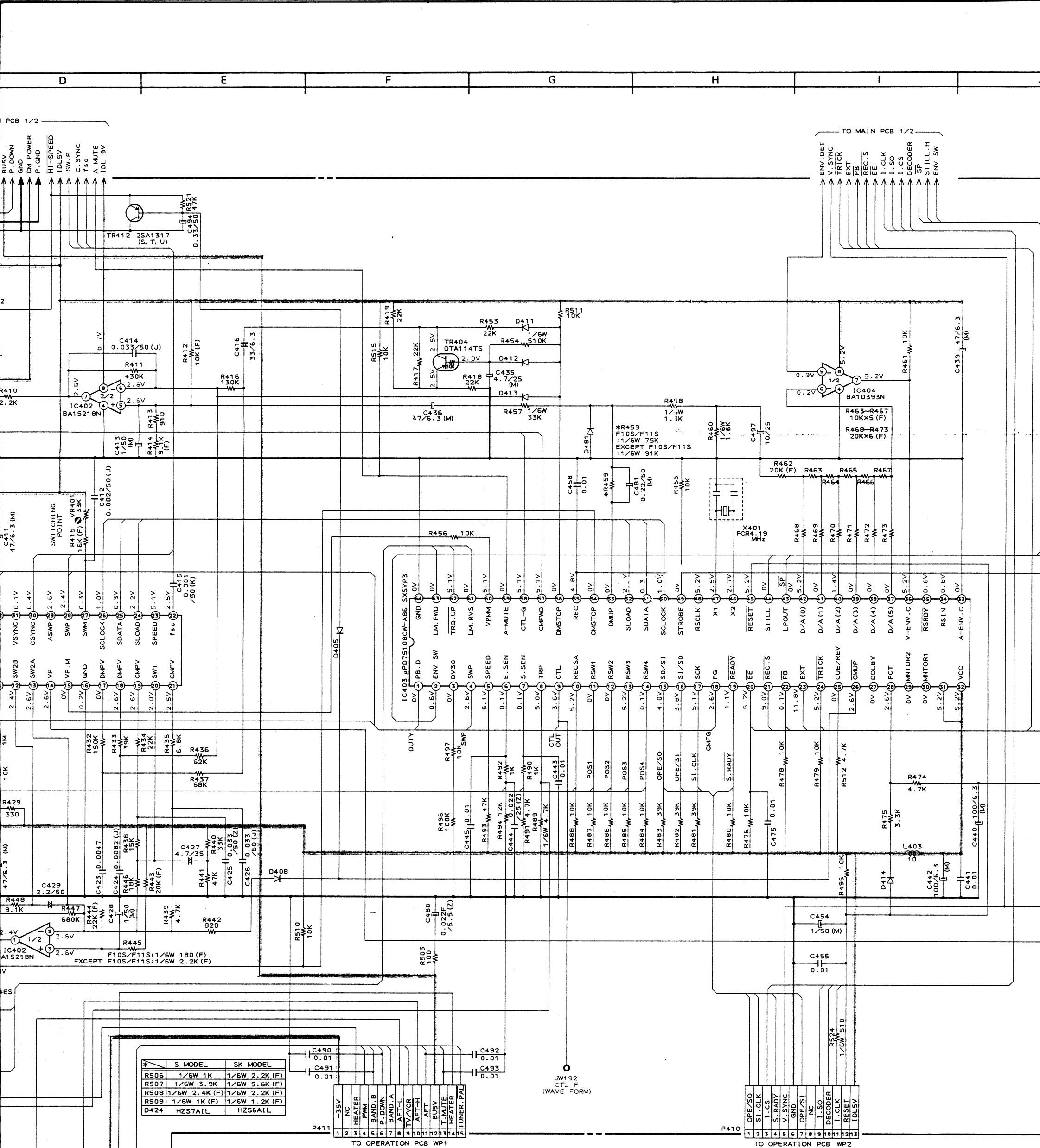
PRINCIPAL PARTS LOCATION

ICS		TRANSISTORS	
IC10	F6	TR1	E,F6
IC20	E5	TR2	F6
IC102	B,C4,5	TR3	F6
IC201	E,F4	TR10	F6
IC301	D5	TR11	F5
IC401	E3	TR30	E5
IC402	C3	TR31	E5
IC403	C,D1,2	TR32	F5
IC404	C2	TR33	F5
IC405	E1	TR42	E4
		TR49	E4
CONNECTORS & WIRES		TR60	E5
P203	D,E4	TR62	E6
P302	C5	TR101	C6
P306	D5	TR103	B,C6
P408	F3	TR105	E6
P409	F2	TR107	C5
P410	C1	TR109	C5
P411	F1	TR110	B5
P901	C6	TR111	B4
P902	C,D6	TR112	B4
P903	D,E6	TR113	B6
WP301	C5	TR203	F4
WP301	E3	TR204	F4
WF201	F5	TR205	E4
		TR206	F4
		TR207	F4
		TR301	C5
		TR303	D4
		TR304	C,D4
		TR306	D4
		TR401	E3
		TR402	E3
		TR403	E3
		TR404	D3
		TR405	C3
		TR406	E1
		TR408	E1
		TR409	E1
		TR410	F1
		TR411	F1
		TR412	F3

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

TO MAIN PCB 1/2
TUNER.PAL
T.MUTE
AFT-E
TV/VIDEO
BAND.A
BAND.B
PWM
AFT
37V
UNR23V
LIMT16V
BU5V
P.DOWN
GND
CM POWER
P.GND
HI-SPEED
IDL5V
SW.P
C.SYNC
fsc
A MUTE
IDL 9V
TR412 2SA1317 (S, T, U)
R521 47K
C494 0.33/50
TR401 DTC144ES
TR402 DTC144ES
TR403 DTC144ES
R403 1/6W 2.2K
R402 2.7K
C403 33/16 (M)
D402
C414 0.033/50 (J)
R411 430K
R412 10K (F)
C416 33/6.3
R416 130K
IC402 BA15218N
R410 2.2K
R413 910
R414 9.1K (F)
C413 1/50 (M)
TO DRUM MOTOR PCB P1
P401
CONT
FG
DM. POWER
M. GND
PG
GND
IDL5V
C401 22/35 (M)
F/R
C402 0.01
R406 470
CTL.G
C456 0.0022
R401 10K
TO CTL HEAD
WP301b
CTL
GND
TP502 CTL CHECK
C404 0.0022
R404 1K
C405 47/6.3 (M)
D425
R405 1/6W 270K
C406 10/25 (M)
R407 1K
C407 47/6.3 (M)
D403
D404
C409 0.0022
L401 100
C410 0.022/25 (Z)
C411 47/6.3 (M)
SWITCHING POINT
R415 VR401 33K
C412 0.082/50 (J)
TO CAPSTAN MOTOR
P408
F/R
FG
CONT
LIMIT
IDL5V
GND
CM. POWER
P. GND
IC401 SX2777CS
PBCTL
AMP OUT
AMP-
AMP+
A.GND
REC CTL
REF
TEST
VCC
CTL OUT
DUTY
VSYNC
CSYNC
ASWP
SWP
SWM
SCLOCK
SDATA
SLOAD
SPEED
fsc
AVCC
B+
B-
DMPG
FF4
HEAD
DMFG
CFGO
-
+
CKFG
SW2B
SW2A
VP
VP.M
GND
DMPV
DMFV
CMPV
SW1
CMFV
R408 680
C415 0.001/50 (K)
C482 0.01
C420 1/50
L402 100
R424 1K
F10S/F11S ONLY
JS401
R426 1K
D406 1S2473T
R425 6.8K
R430 1M
R428 10K
R432 150K
R433 39K
R434 22K
R435 6.8K
R436 62K
R437 68K
R427 10K
R429 330
C421 0.01
C417 47/6.3 (M)
C418 0.022/25 (Z)
R423 100K
R422 100K
C419 4.7/25 (M)
EXCEPT F10S/F11S JS402
C483 0.022/25 (Z)
R450 1/6W 10K (F)
D407 HZS2C3
C422 47/6.3 (M)
C429 2.2/50
C423 0.0047
C424 0.0082 (J)
R438 15K
R446 18K
R443 20K (F)
C427 4.7/35
R441 47K
R440 33K
C425 0.033/50 (Z)
C426 0.033/50 (J)
D408
R448 9.1K
R449 2.2K
R447 680K
R444 22K (F)
C428 1/50 (M)
R439 4.7K
R442 820
R421 2.2K (F)
R420 7.5K (F)
SK ONLY
R452 1/6W 0.47 (K)
R452 (FS) 1W 0.47 (J)
S ONLY
IC405 BA6229 LMFLMP
C431 0.022/25 (Z)
C430 0.01
LMF
LMR
R445
F10S/F11S:1/6W 180 (F)
EXCEPT F10S/F11S:1/6W 2.2K (F)
TR405 DTC144ES
R510 10K
TO SENSOR PCB J1
P409
S.SENS
POS 1
POS 2
POS 3
POS 4
IDL5V
T.REEL.P
END SENS
NC
GND
LM+
LM-
REC.SAF
C432 1/50 (M)
C434 1/50 (M)
C433 0.01
D409 HZS7B3L
D410 HZS9B3L
TR406 DTC144ES
TRQ
C490 0.01
C491 0.01
S MODEL
SK MODEL
R506 1/6W 1K 1/6W 2.2K (F)
R507 1/6W 3.9K 1/6W 5.6K (F)
R508 1/6W 2.4K (F) 1/6W 2.2K (F)
R509 1/6W 1K (F) 1/6W 1.2K (F)
D424 HZS7AIL HZS6AIL
P411
-35V
NC
HEATER
FR498 1/4W 4.7
C448 10/50 (M)
C449 10/50 (M)
D421
C450 10/50 (M)
D405
D416 1SS136
C447 56/16 (M)
L405 1.8m
L404 SO33344
S ONLY
*D426 *FR523
D419
R502 1.5K
D422 HZS30-2L
R504 10K
D420
SK ONLY
JS420
D482
S ONLY
AFT.E
D417 1SS136
D418 HZS5B2
C446 56/16 (M)
*D426 HZS482
*FR523 1/4W 22
JS408
FB401
SK ONLY
C451 10/50 (M)
C453 91P/50 (K)
R503 100K
R500 82
R499 82
R501 100K
C460 10/50
R520 68
TR408 2SD1292 (Q, R)
TR409 2SC3330 (S, T, U)
D423
*R507
*R508
*R509
*R506
TR410 2SC3330 (S, T, U)
TR411 2SC3330 (S, T, U)
MAIN PCB V1116A505A



*	S MODEL	SK MODEL
R506	1/6W 1K	1/6W 2.2K (F)
R507	1/6W 3.9K	1/6W 5.6K (F)
R508	1/6W 2.4K (F)	1/6W 2.2K (F)
R509	1/6W 1K (F)	1/6W 1.2K (F)
D424	HZS7AIL	HZS6AIL

WARNING: ⚠ AND ▒▒ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

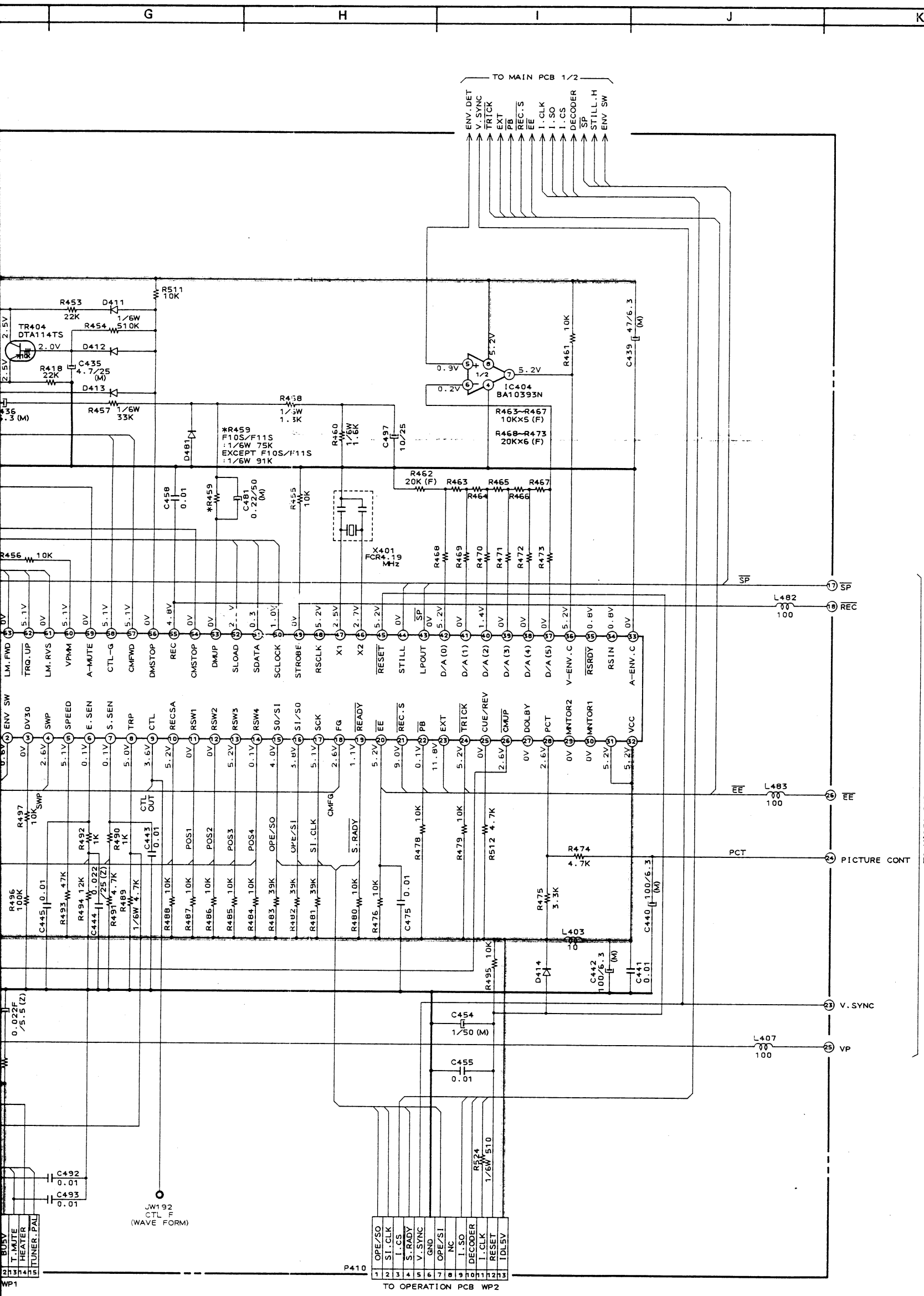
AVERTISSMENT: ⚠ ET ▒▒, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

INDICATED VOLTAGES ARE MEASURED IN PB MODE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W (J)
ALL CAPACITORS IN μF 16WV (N)
ALL DIODES ARE ISS131T
ALL INDUCTORS IN μH (K)

▒▒ : B (POWER SUPPLY) LINE

VS-F1
VS-F1
MAIN (
SCHEM



INDICATED VOLTAGES ARE MEASURED IN PB MODE

WARNING: ⚠ AND ▒ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

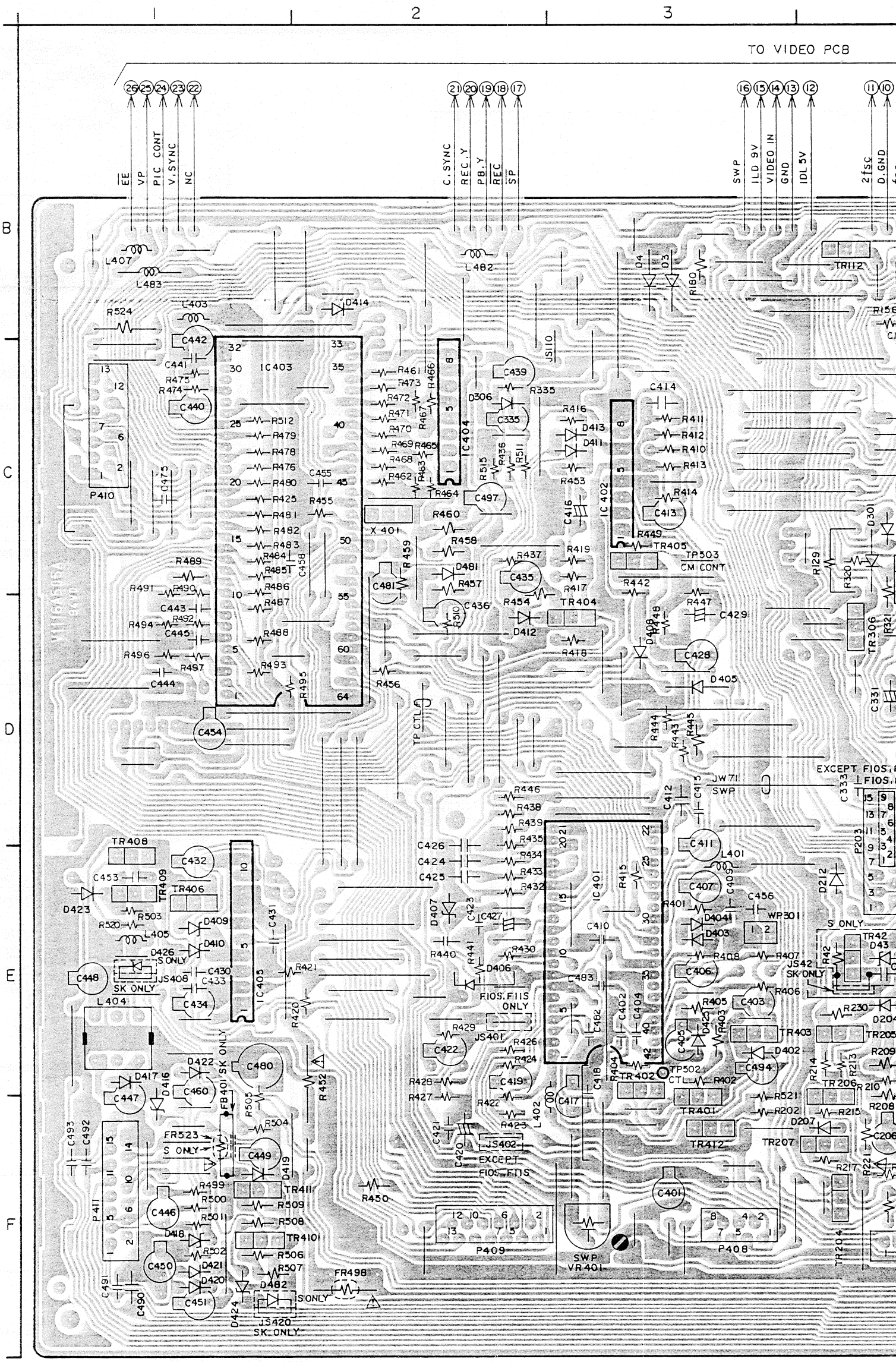
AVERTISSMENT: ⚠ ET ▒, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W (J)
ALL CAPACITORS IN μF 16WV (N)
ALL DIODES ARE ISS131T
ALL INDUCTORS IN μH (K)

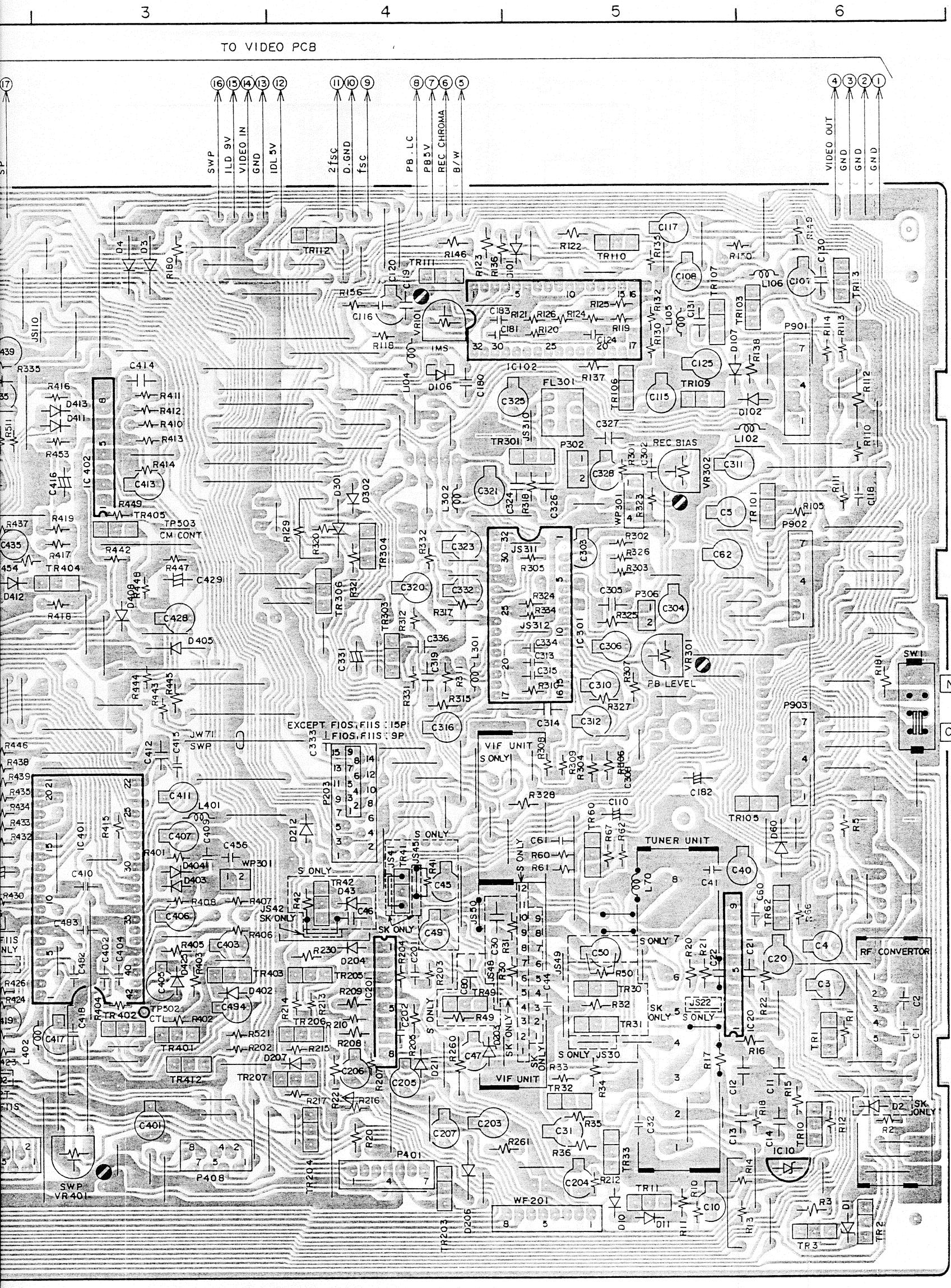
▒▒▒▒▒▒▒▒ : B (POWER SUPPLY) LINE

VS-F10S/F11S/F12S/F15S
VS-F12SK
MAIN (2/2)
SCHEMATIC DIAGRAM

NO.16-4 V111604M



MAIN PCB V1116A505A


3
4
5
6
TO VIDEO PCB
SWP
ILD 9V
VIDEO IN
GND
IDL 5V
2fsc
D.GND
fsc
PB.LC
PB5V
REC CHROMA
B/W
VIDEO OUT
GND
GND
GND
TR112
TR111
TR110
TR107
TR103
TR109
TR106
TR105
TR301
TR304
TR306
TR303
TR404
TR405
TR401
TR412
TR207
TR206
TR205
TR204
TR203
TR403
TR402
TR42
TR41
TR60
TR62
TR30
TR31
TR32
TR33
TR11
TR10
TR3
TR1
TR2
IC102
IC301
IC401
IC402
IC10
IC20
FL301
VR101
VR302
VR301
VR401
SWP
PB LEVEL
REC BIAS
TMS
SW1
N/B
COULEUR
P901
P902
P903
P306
P302
P203
P408
P401
WP301
WF201
JW71
SWP
JS110
JS311
JS312
JS310
JS42
JS45
JS41
JS550
JS30
JS22
TP503
CM CONT
TP502
CTL
L401
L402
L302
L301
L106
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L102
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D106
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D404
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D303
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D207
D206
D204
D212
D43
D60
D2
D1
C117
C108
C107
C130
C131
C125
C115
C311
C5
C62
C304
C306
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C315
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C326
C302
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C110
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C201
C202
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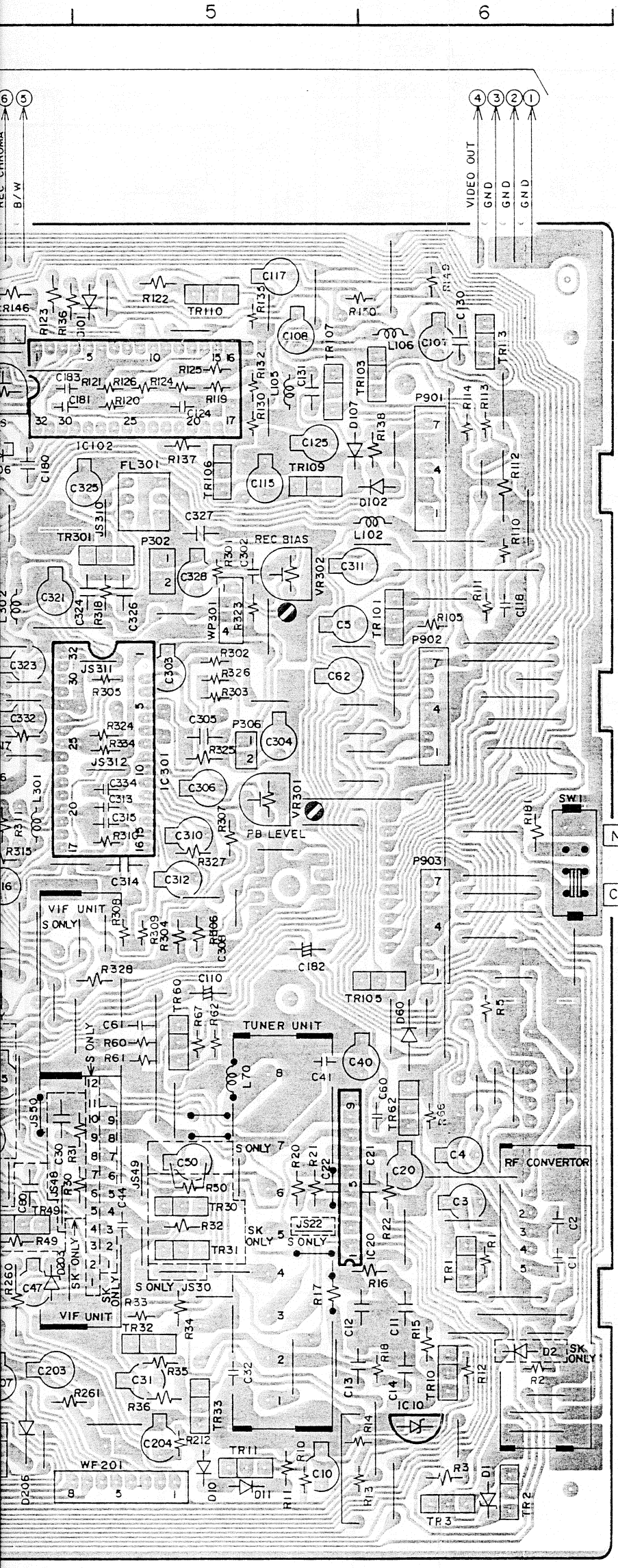
C244
C245
C246
C247



PRINCIPAL PARTS LOCATION

ICS	TRANSISTORS
IC10.....F6	TR1.....E,F6
IC20.....E5	TR2.....F6
IC102.....B,C4,5	TR3.....F6
IC201.....E,F4	TR10.....F6
IC301.....D5	TR11.....F5
IC401.....E3	TR30.....E5
IC402.....C3	TR31.....E5
IC403.....C,D1,2	TR32.....F5
IC404.....C2	TR33.....F5
IC405.....E1	TR42.....E4
	TR49.....E4
CONNECTORS & WIRES	TR60.....E5
P203.....D,E4	TR62.....E6
P302.....C5	TR101.....C6
P306.....D5	TR103.....B,C6
P408.....F3	TR105.....E6
P409.....F2	TR107.....C5
P410.....C1	TR109.....C5
P411.....F1	TR110.....B5
P901.....C6	TR111.....B4
P902.....C,D6	TR112.....B4
P903.....D,E6	TR113.....B6
WP301.....C5	TR203.....F4
WP301.....E3	TR204.....F4
WF201.....F5	TR205.....E4
	TR206.....F4
	TR207.....F4
	TR301.....C5
	TR303.....D4
	TR304.....C,D4
	TR306.....D4
	TR401.....E3
	TR402.....E3
	TR403.....E3
	TR404.....D3
	TR405.....C3
	TR406.....E1
	TR408.....E1
	TR409.....E1
	TR410.....F1
	TR411.....F1
	TR412.....F3

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

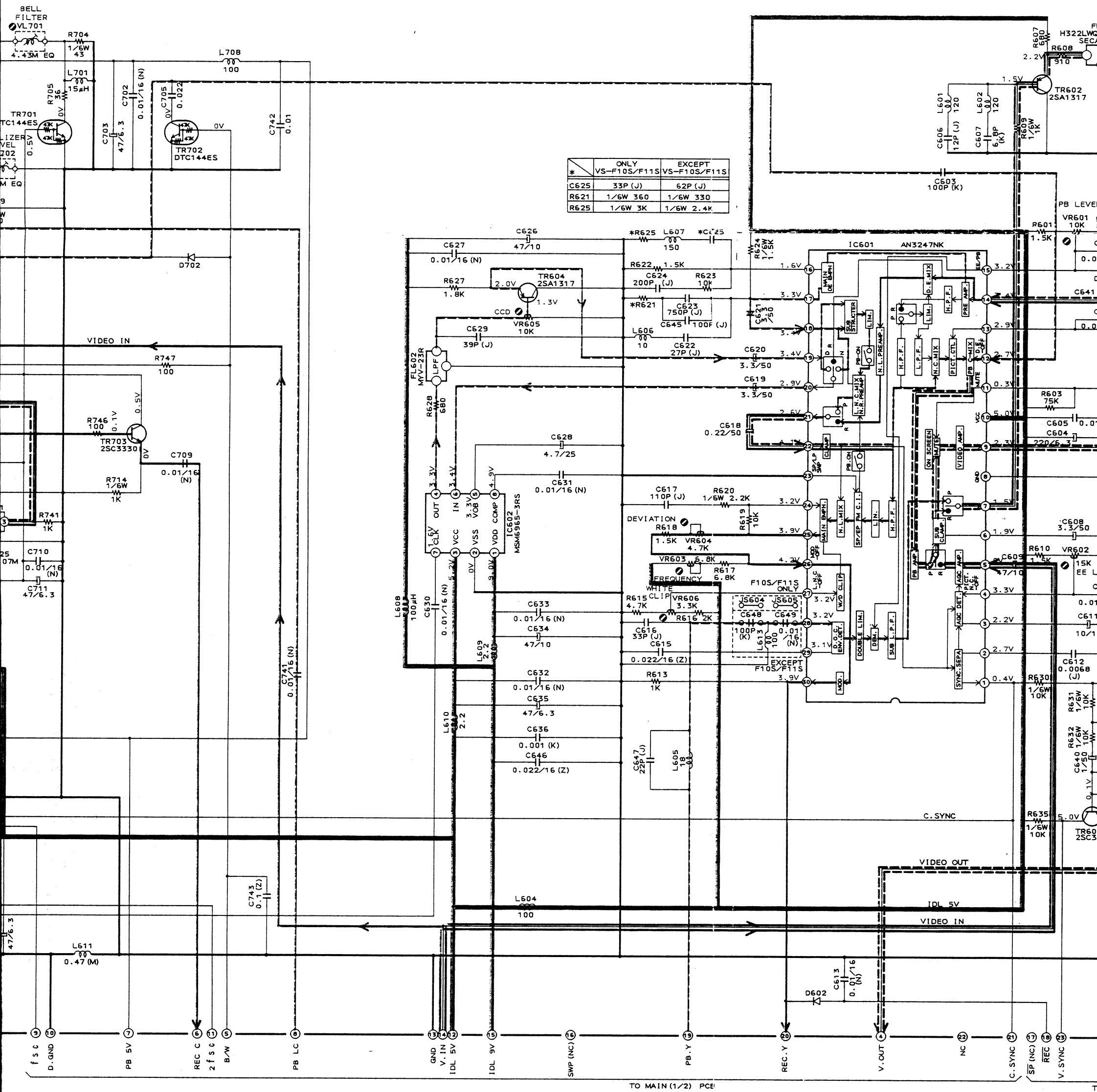
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

* S ONLY → VS-F10S, F11S, F12S, F15S ONLY

* SK ONLY → VS-F12SK

IC701 BA7107S
BELL FILTER VL701
4.43M EQ
EQUALIZER LEVEL VL702
1.07M EQ
TR701 DTC144ES
TR702 DTC144ES
TR703 2SC3330
TR704 2SC3330
TR705 UN4119
TR706 DTA144ES
TR707 2SC3330
TR708 2SC3330
TR709 2SC3330
TR710 2SC3330
TR711 2SC3330
FL701 B.P.F. 1.07M SBP-4425 -107M
FL702 BPF-K5-MS (5969)
FL703 H2898NKN -7235LHD
B.P.F.4.3M
VIDEO IN
NOISE GATE
SYNC TIMING GATE
P.B SYNC GATE
REC SYNC GATE
REC 5
VCC
C.SYNC
VIDEO PCB V1116A505B
TO MAIN (1/2) PCB
GND GND GND
fsc D.GND
PB 5V
REC C
2fsc
B/W
PB LC

D	E	F	G	H	I



*	ONLY VS-F10S/F11S	EXCEPT VS-F10S/F11S
C625	33P (J)	62P (J)
R621	1/6W 360	1/6W 330
R625	1/6W 3K	1/6W 2.4K

: B (POWER SUPPLY) LINE
: REC Y SIGNAL LINE
: PB Y SIGNAL LINE
: REC CHROMA SIGNAL LINE
: PB CHROMA SIGNAL LINE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL INDUCTORS IN μH (K)
ALL DIODES ARE 1SS131T

INDICATED VOLTAGES ARE MEASURED IN "PB" MODE.

VS-F1
VS-F1
VIDEO
SCHEM

D	E	F	G	H	I

*	ONLY VS-F10S/F11S	EXCEPT VS-F10S/F11S
C625	33P (J)	62P (J)
R621	1/6W 360	1/6W 330
R625	1/6W 3K	1/6W 2.4K

FL601 H322LWQ-1166MAD SECAM LPF

TR602 2SA1317

TR604 2SA1317

TR608 2SC3330

IC601 AN3247NK

IC602 MSM6965-3RS

D601 D602 D603 1SS198

PB LEVEL VR601 10K

EE LEVEL VR602 15K

DEVIATION R618 1.5K VR604 4.7K

FREQUENCY VR603 6.8K

WHITE CLIP VR606 3.3K

F10S/F11S ONLY

EXCEPT F10S/F11S

C.SYNC

VIDEO OUT

IDL 5V

VIDEO IN

TO MAIN (1/2) PCB

TO MAIN (2/2) PCB

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL INDUCTORS IN μH (K)
ALL DIODES ARE 1SS131T

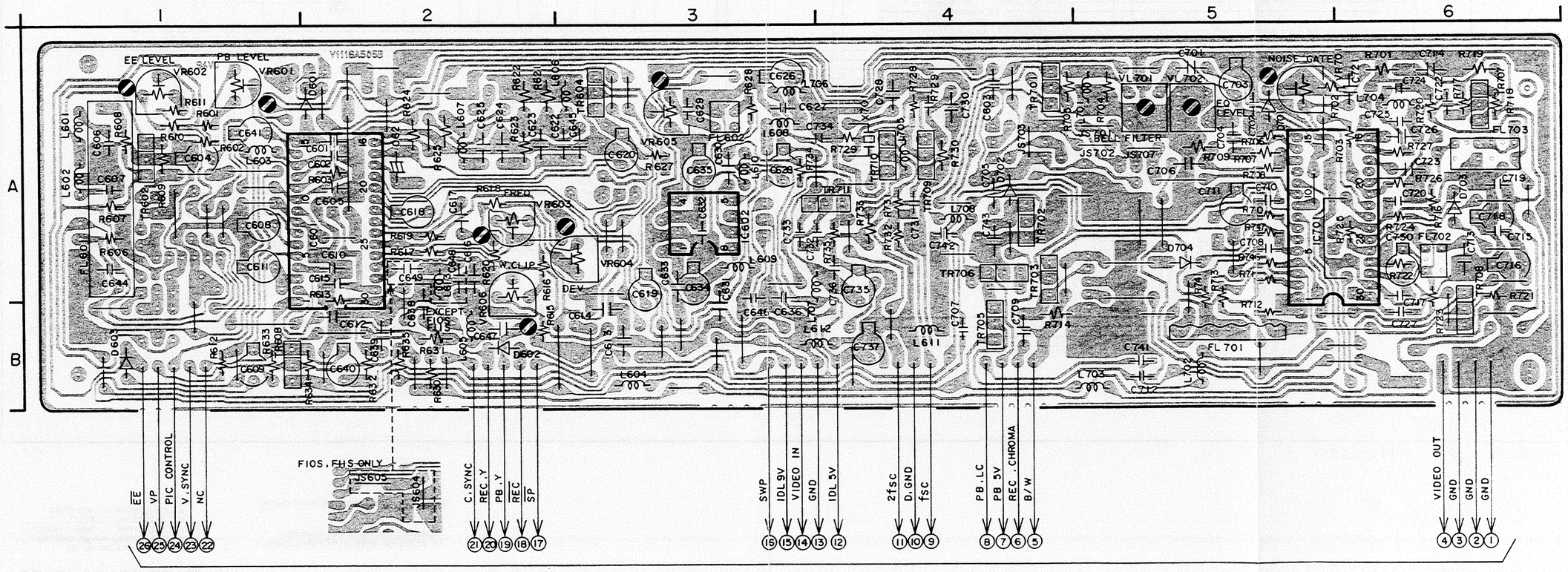
INDICATED VOLTAGES ARE MEASURED IN "PB" MODE.

PPLY) LINE
AL LINE
L LINE
SIGNAL LINE
SIGNAL LINE

VS-F10S/F11S/F12S/F15S
VS-F12SK
VIDEO
SCHEMATIC DIAGRAM
NO.16-5 V111605M

PRINCIPAL PARTS LOCATION

ICS	TRANSISTORS
IC601.....A2	TR701.....A4
IC602.....A3	TR702.....A4
IC603.....A5,6	TR703.....A,B4
	TR705.....B4
	TR706.....A4
	TR707.....A6
	TR708.....A,B6
	TR709.....A4
	TR710.....A4
	TR711.....A3,4
	TR602.....A1
	TR604.....A3
	TR608.....B1



VIDEO PCB V1116A505B

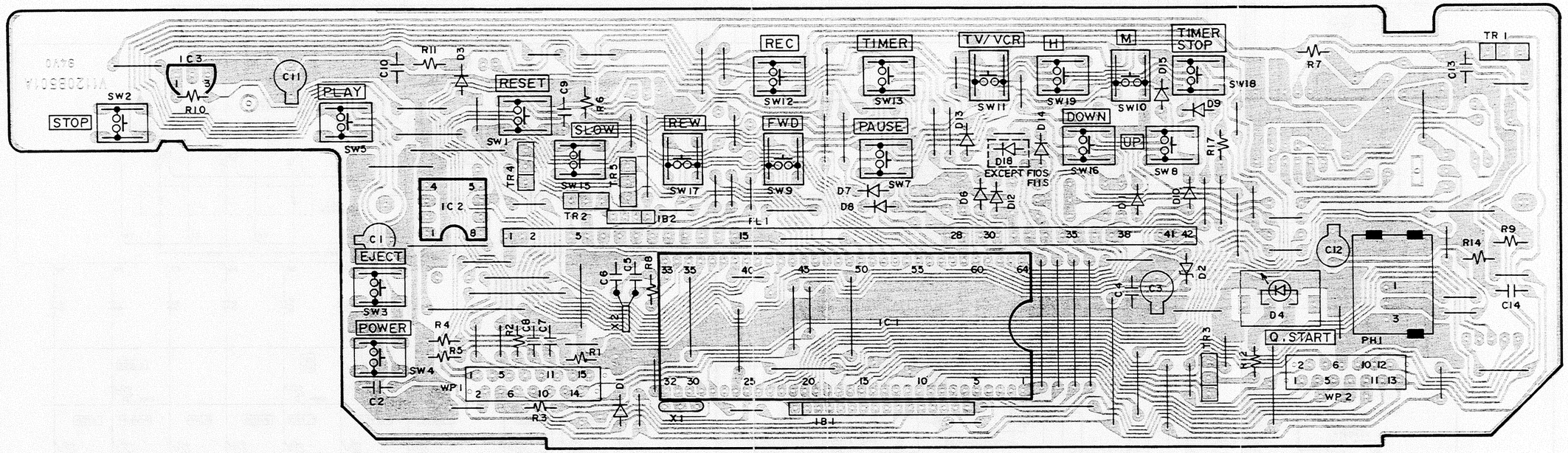
OPERATION (A) PCB V1120B501A

: B (POWER SUPPLY) LINE

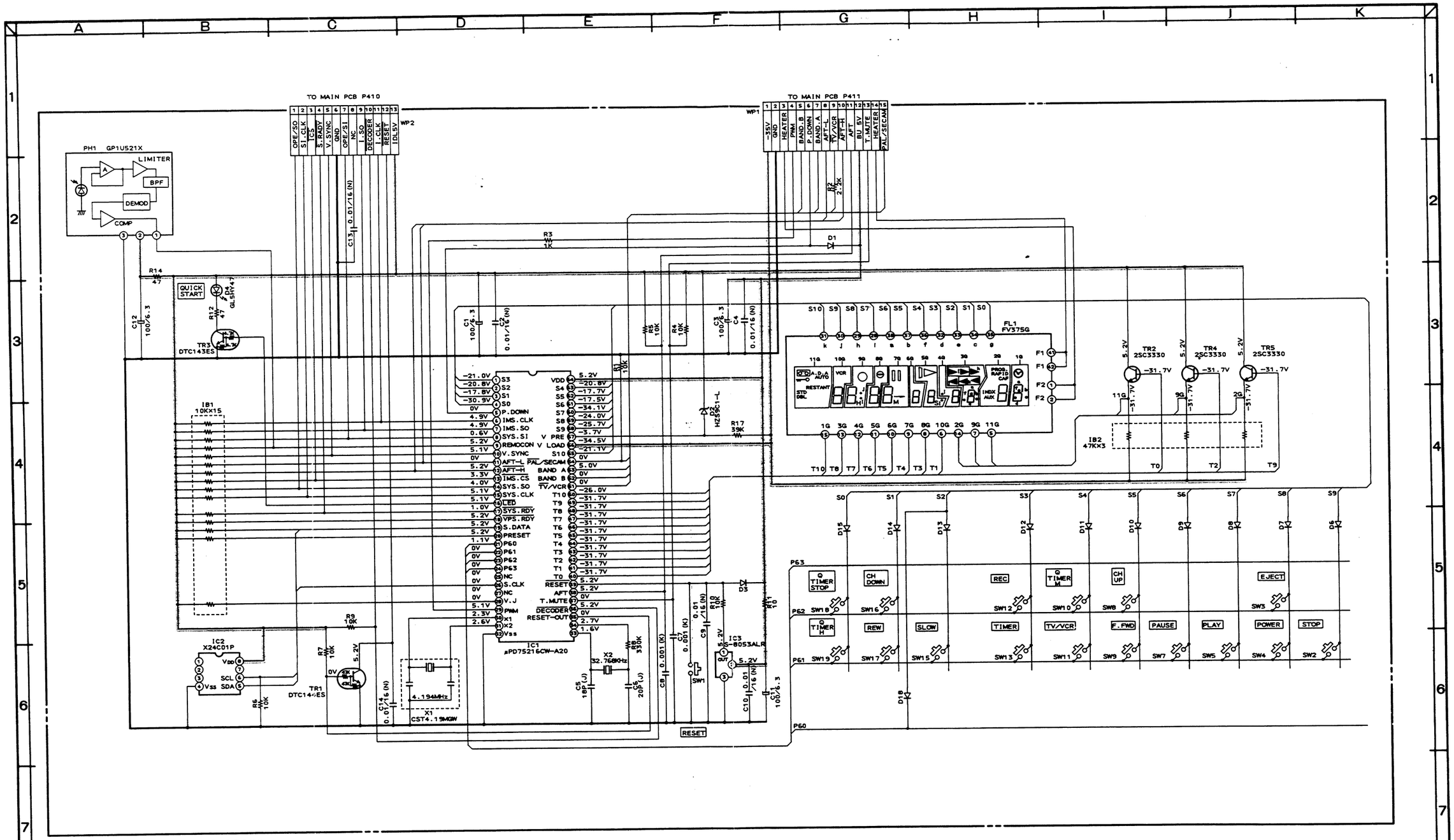
INDICATED VOLTAGES ARE MEASURED IN STOP (E-E) MODE. WITH TAPE LOADED.

NOTE
UNLESS OTHERWISE SPECIFIED
ALL DIODES ARE 1SS131T
ALL RESISTERS IN OHMS 1/6 W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL INDUCTORS IN μH (K)

VS-F10S/F11S/F12S
VS-F12SK
OPERATION (A)
SCHEMATIC DIAGRAM
NO.16-6 V111606M



OPERATION (A) PCB V1120B501A



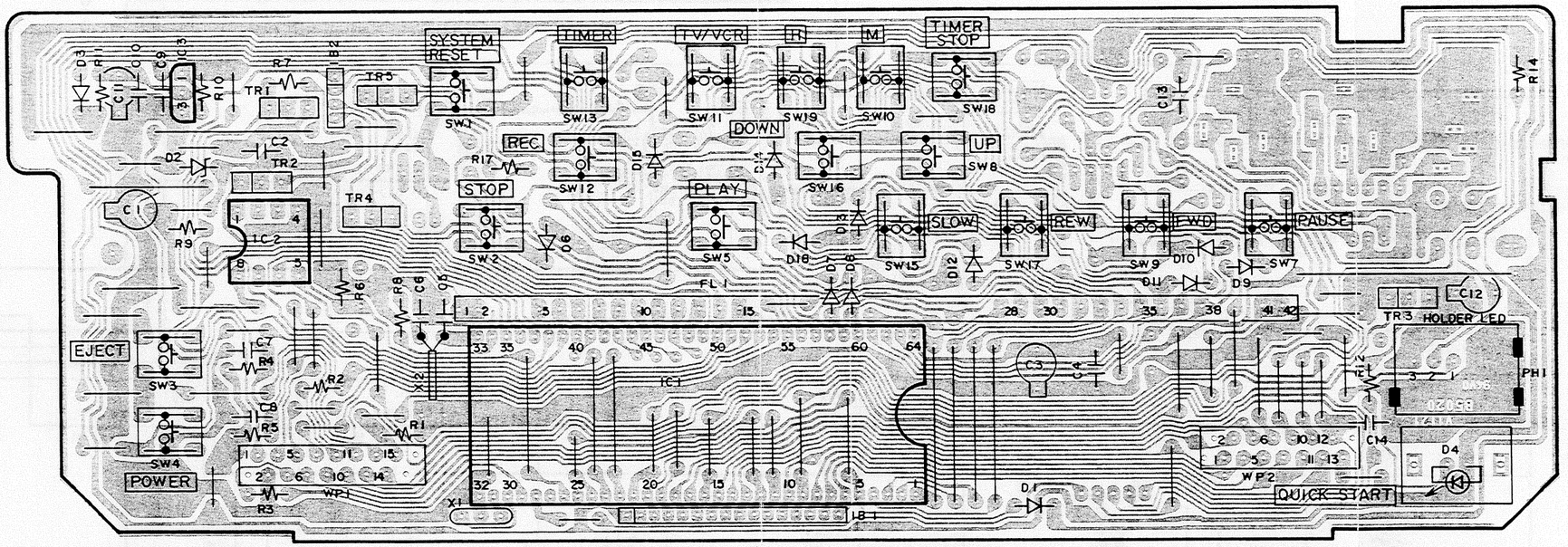
OPERATION (B) PCB V1121B5020

: B (POWER SUPPLY) LINE

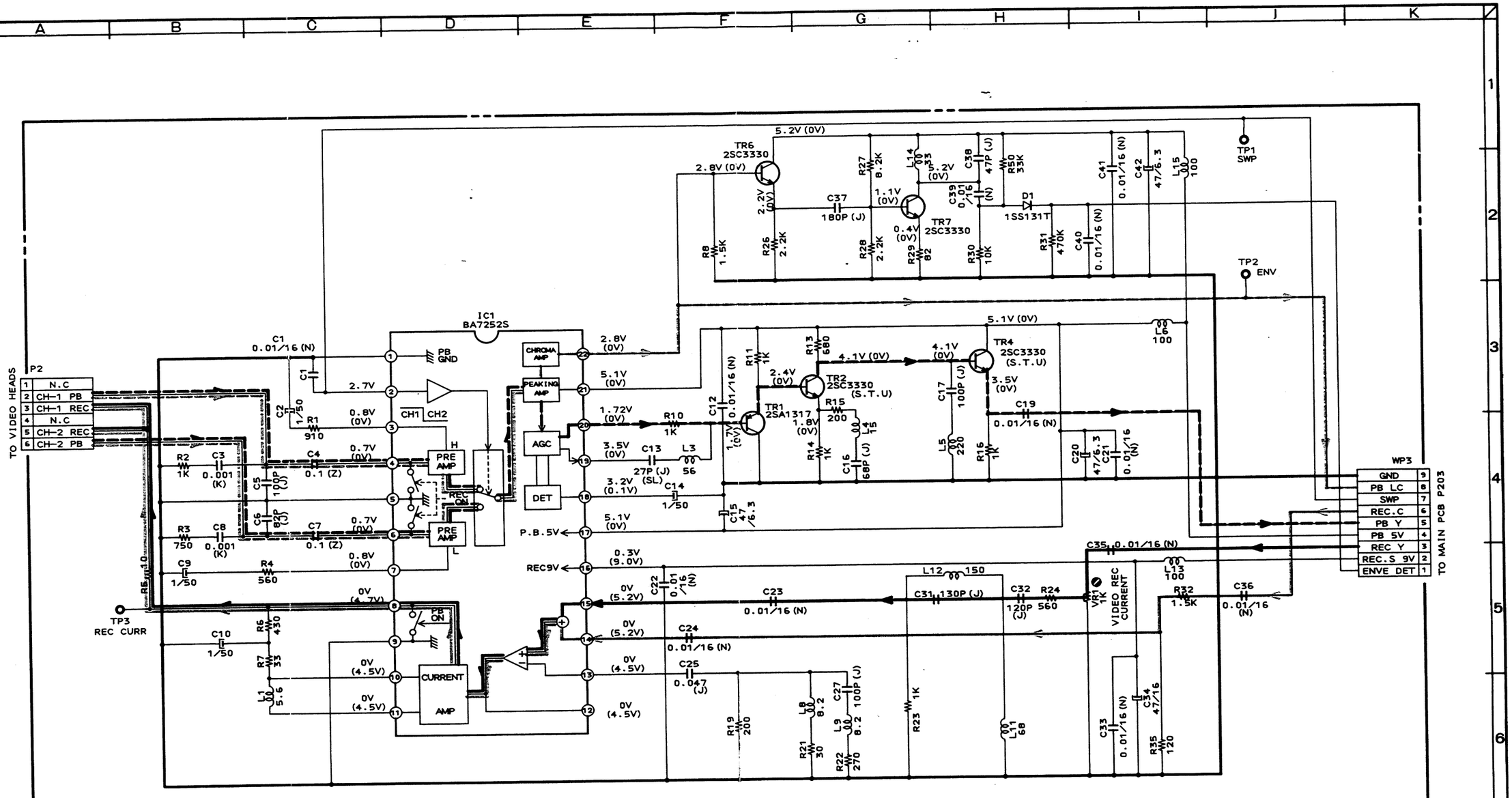
INDICATED VOLTAGES ARE MEASURED IN STOP (E-E) MODE, WITH TAPE LOADED.

NOTE
UNLESS OTHERWISE SPECIFIED
ALL DIODES ARE 1SS131T
ALL RESISTERS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50WV (M)
ALL INDUCTORS IN μH (K)

VS-F15S
OPERATION (B)
SCHEMATIC DIAGRAM
NO.16-7 V111607M



OPERATION (B) PCB V1121B5020



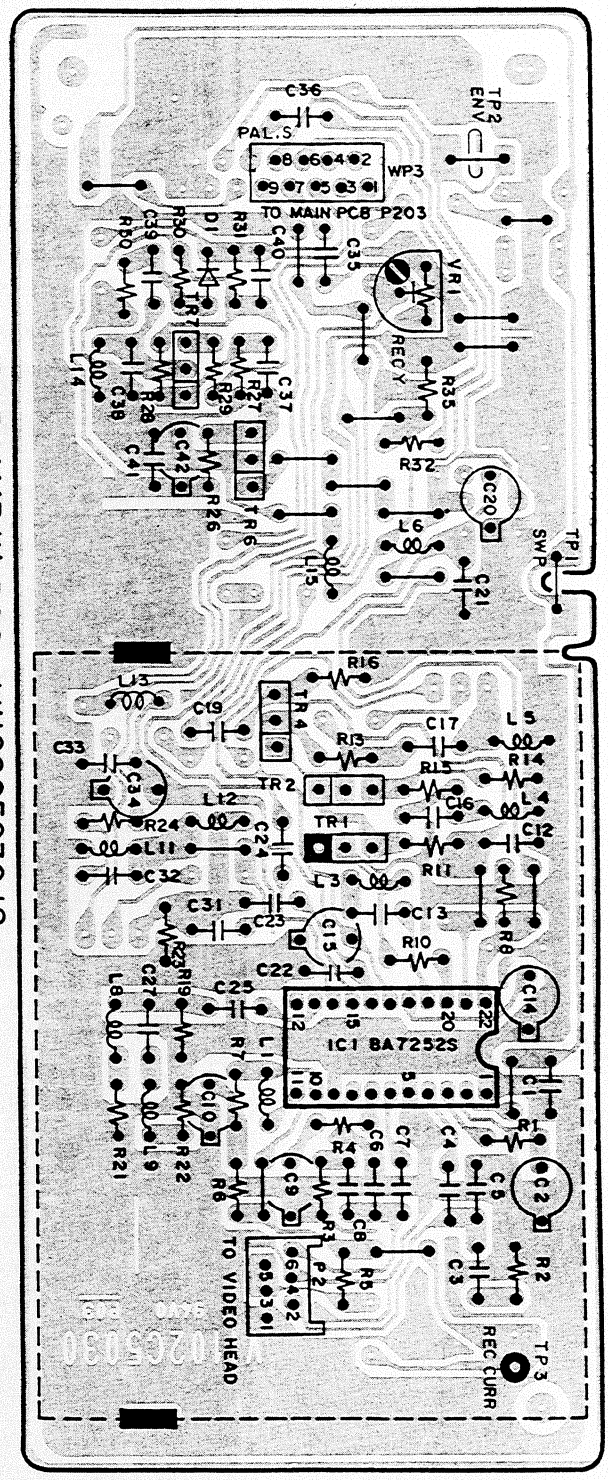
PRE AMP (1) PCB V1102C5030

:REC CHROMA SIGNAL
:REC Y SIGNAL
:PB CHROMA SIGNAL
:PB Y SIGNAL

INDICATED VOLTAGES ARE MEASURED IN PB MODE.
( ) REC MODE.

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50WV(M)
ALL INDUCTORS IN μH(K)

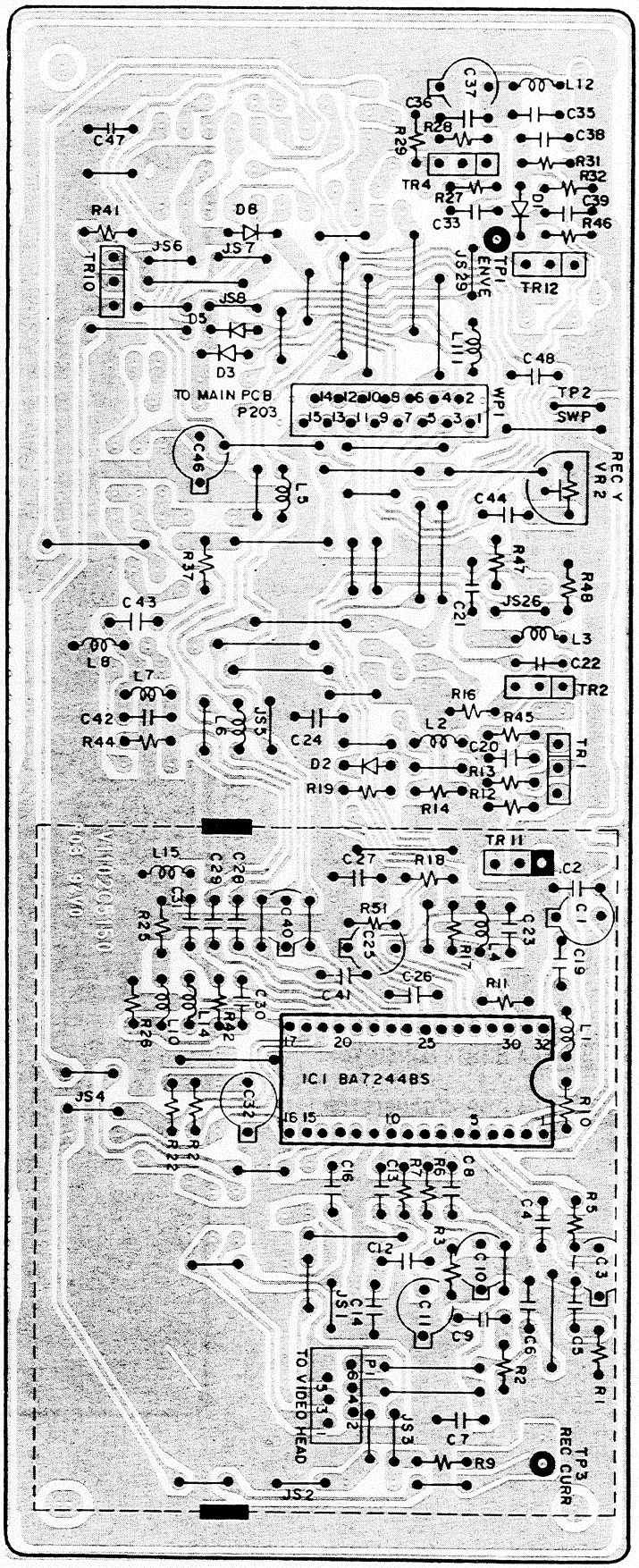
VS-F10S/F11S
PRE AMP (1)
SCHEMATIC DIAGRAM
NO.16-8 V111608M



B
= NPN TRANSISTOR
B
= PNP TRANSISTOR

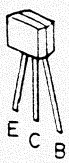
E C B
2SA1317
2SC3330
DTC114TS

PRE AMP(2) PCB VII02C5150J2

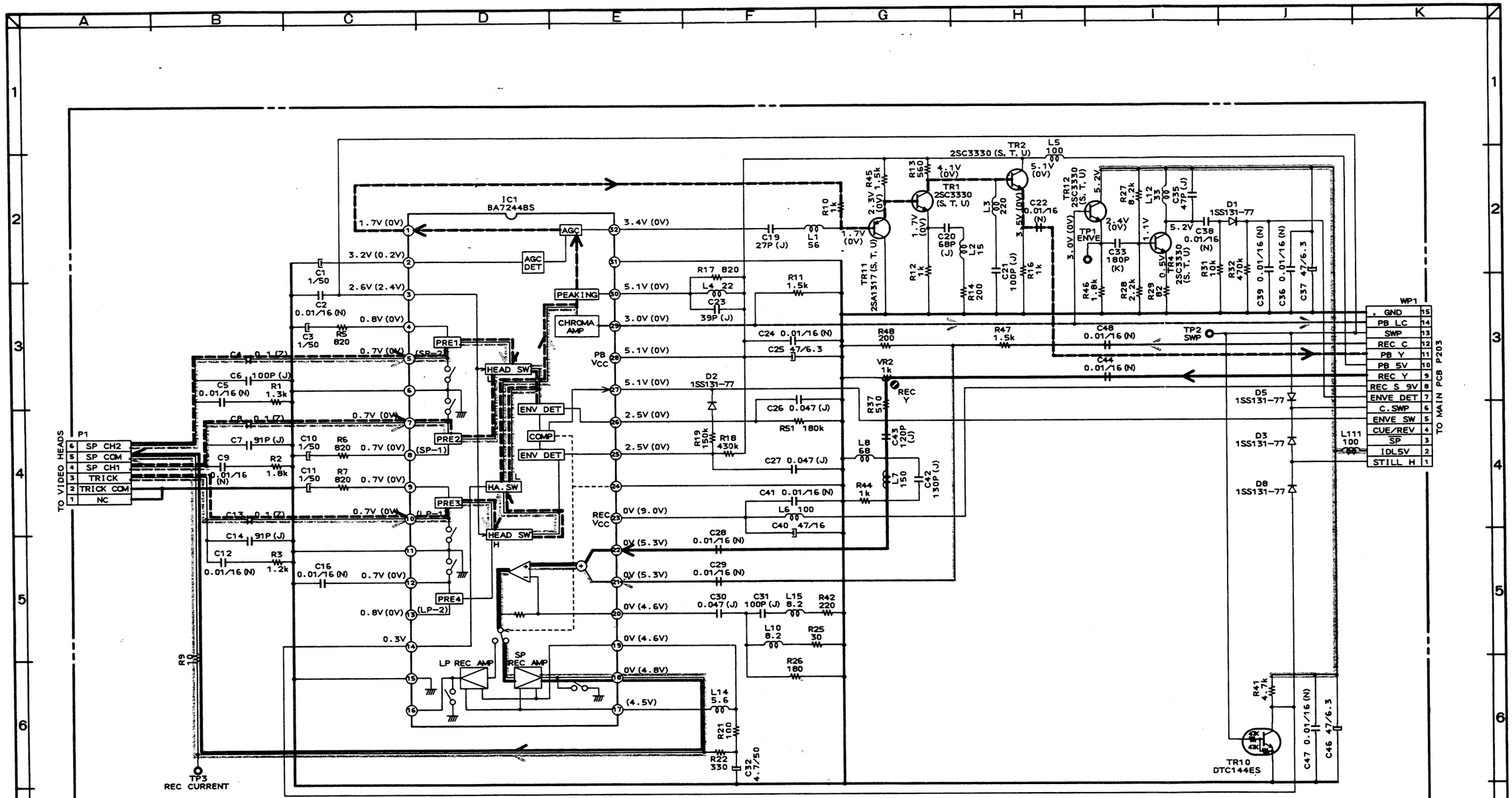


B C E
= NPN TRANSISTOR

B C E
= PNP TRANSISTOR



2SA1317
2SC3330
DTC114ES
DTC144ES



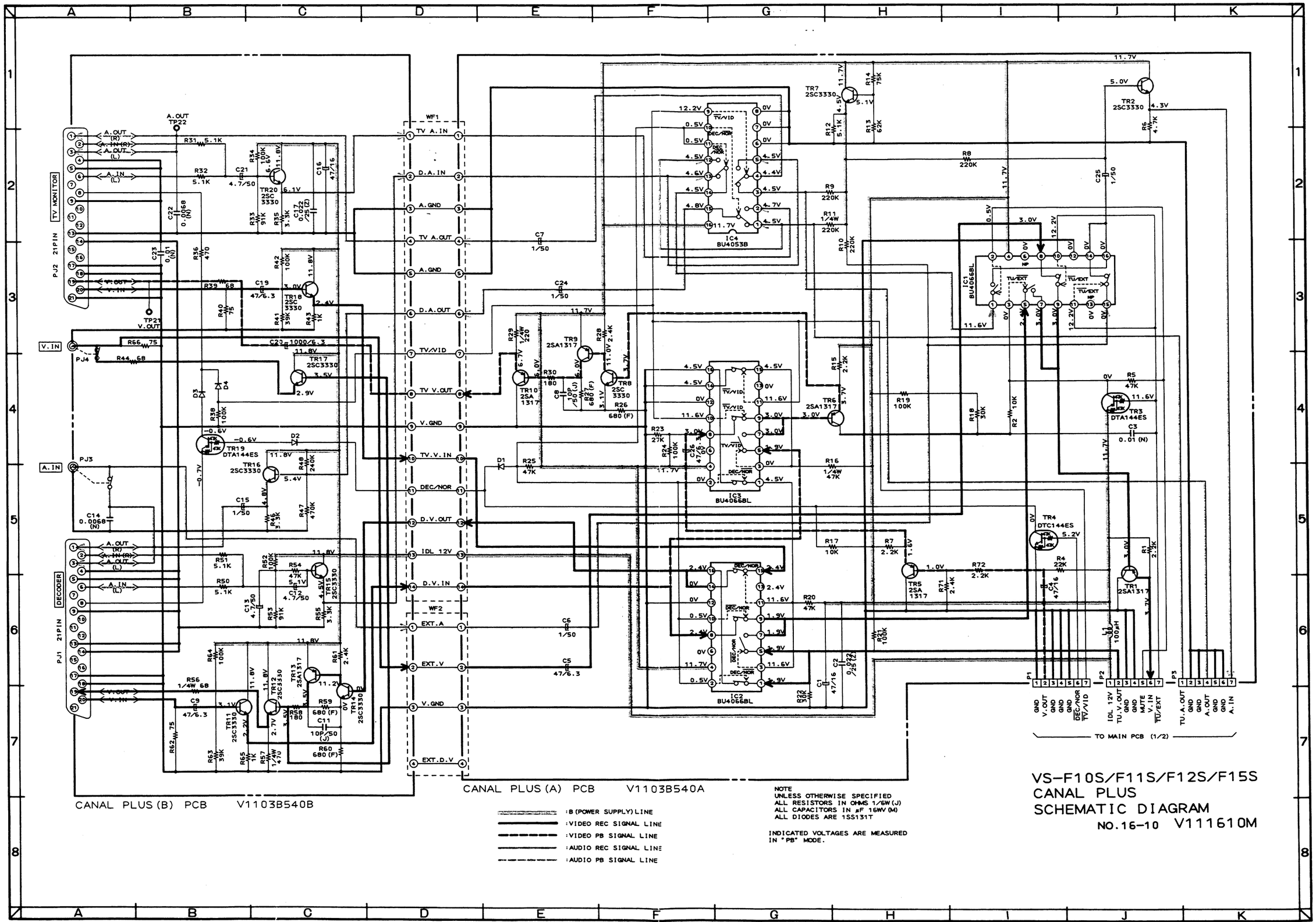
PRE AMP (2) PCB V1102C5150

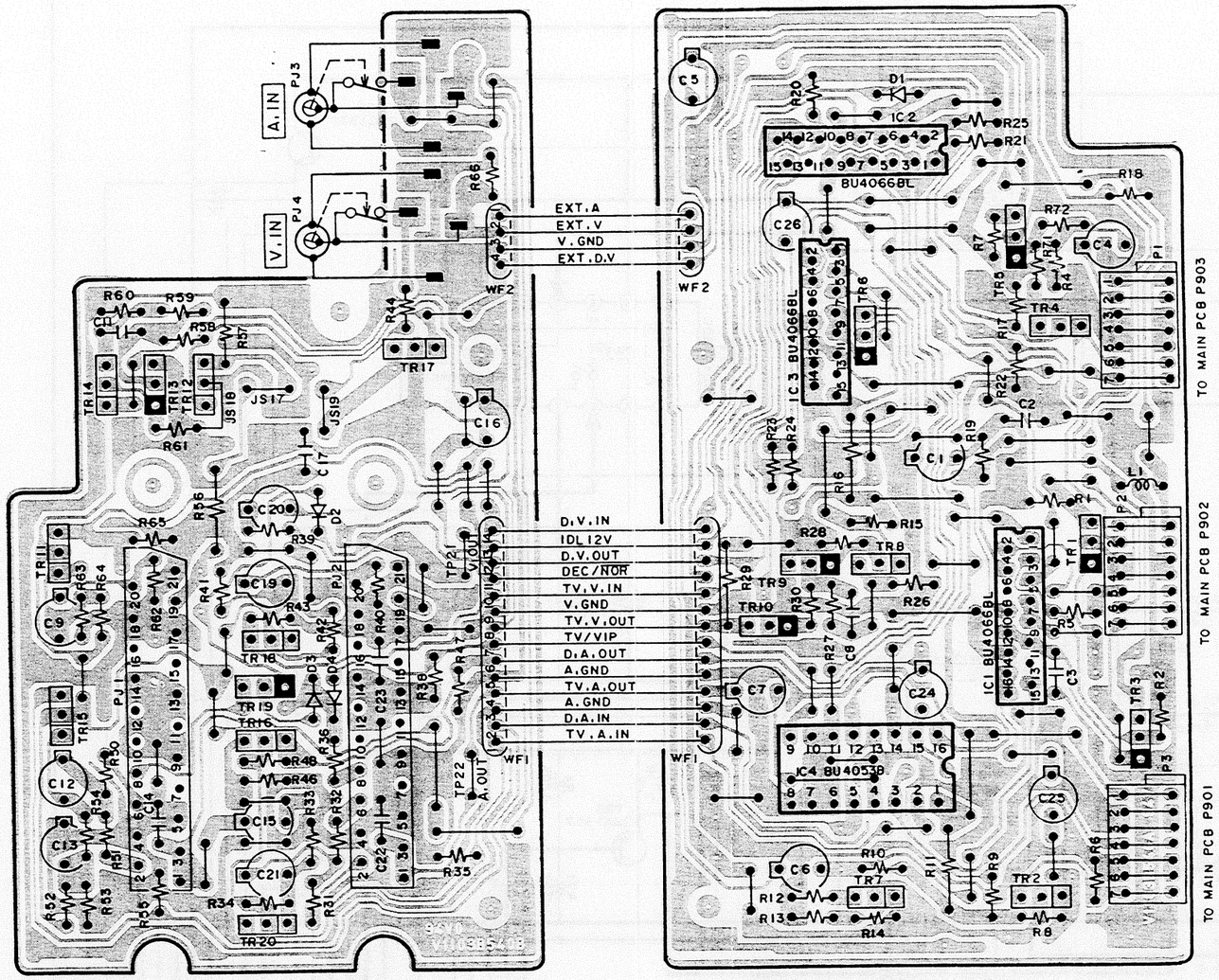
: B (POWER SUPPLY) LINE
: REC Y SIGNAL LINE
: PB Y SIGNAL LINE
: REC CHROMA SIGNAL LINE
: PB CHROMA SIGNAL LINE

INDICATED VOLTAGES ARE MEASURED IN PB MODE.
INDICATE VOLTAGES IN ( ) ARE MEASURED IN REC MODE.

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL INDUCTORS IN μH (K)
ALL DIODES ARE 1SS131T-77

VS-F12S/F15S
VS-F12SK
PRE AMP (2)
SCHEMATIC DIAGRAM
NO. 16-9 V111609M

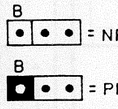

TV MONITOR
PJ2 21PIN
A.OUT (R)
A.IN (R)
A.OUT (L)
A.IN (L)
V.OUT
V.IN
TP22 A.OUT
TP21 V.OUT
PJ4 V.IN
PJ3 A.IN
DECODER
PJ1 21PIN
CANAL PLUS (B) PCB V1103B540B
WF1
TV A.IN
D.A.IN
A.GND
TV A.OUT
A.GND
D.A.OUT
TV/VID
TV V.OUT
V.GND
TV.V.IN
DEC/NOR
D.V.OUT
IDL 12V
D.V.IN
WF2
EXT.A
EXT.V
V.GND
EXT.D.V
CANAL PLUS (A) PCB V1103B540A
IC4 BU4053B
IC3 BU4066BL
IC2 BU4066BL
IC1 BU4066BL
TR20 2SC3330
TR18 2SC3330
TR17 2SC3330
TR16 2SC3330
TR15 2SC3330
TR14 2SC3330
TR13 2SA1317
TR12 2SC3330
TR11 2SC3330
TR10 2SA1317
TR9 2SA1317
TR8 2SC3330
TR7 2SC3330
TR6 2SA1317
TR5 2SA1317
TR4 DTC144ES
TR3 DTA144ES
TR2 2SC3330
TR1 2SA1317
TR19 DTA144ES
P1 GND V.OUT GND GND GND DEC/NOR TV/VID
P2 IDL 12V TU V.OUT GND GND MUTE V.IN TEL/EXT
P3 TU A.OUT GND GND A.OUT GND GND A.IN
TO MAIN PCB (1/2)
:B (POWER SUPPLY) LINE
:VIDEO REC SIGNAL LINE
:VIDEO PB SIGNAL LINE
:AUDIO REC SIGNAL LINE
:AUDIO PB SIGNAL LINE
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μF 16WV (M)
ALL DIODES ARE 1SS131T
INDICATED VOLTAGES ARE MEASURED IN "PB" MODE.
VS-F10S/F11S/F12S/F15S
CANAL PLUS
SCHEMATIC DIAGRAM
NO.16-10 V111610M

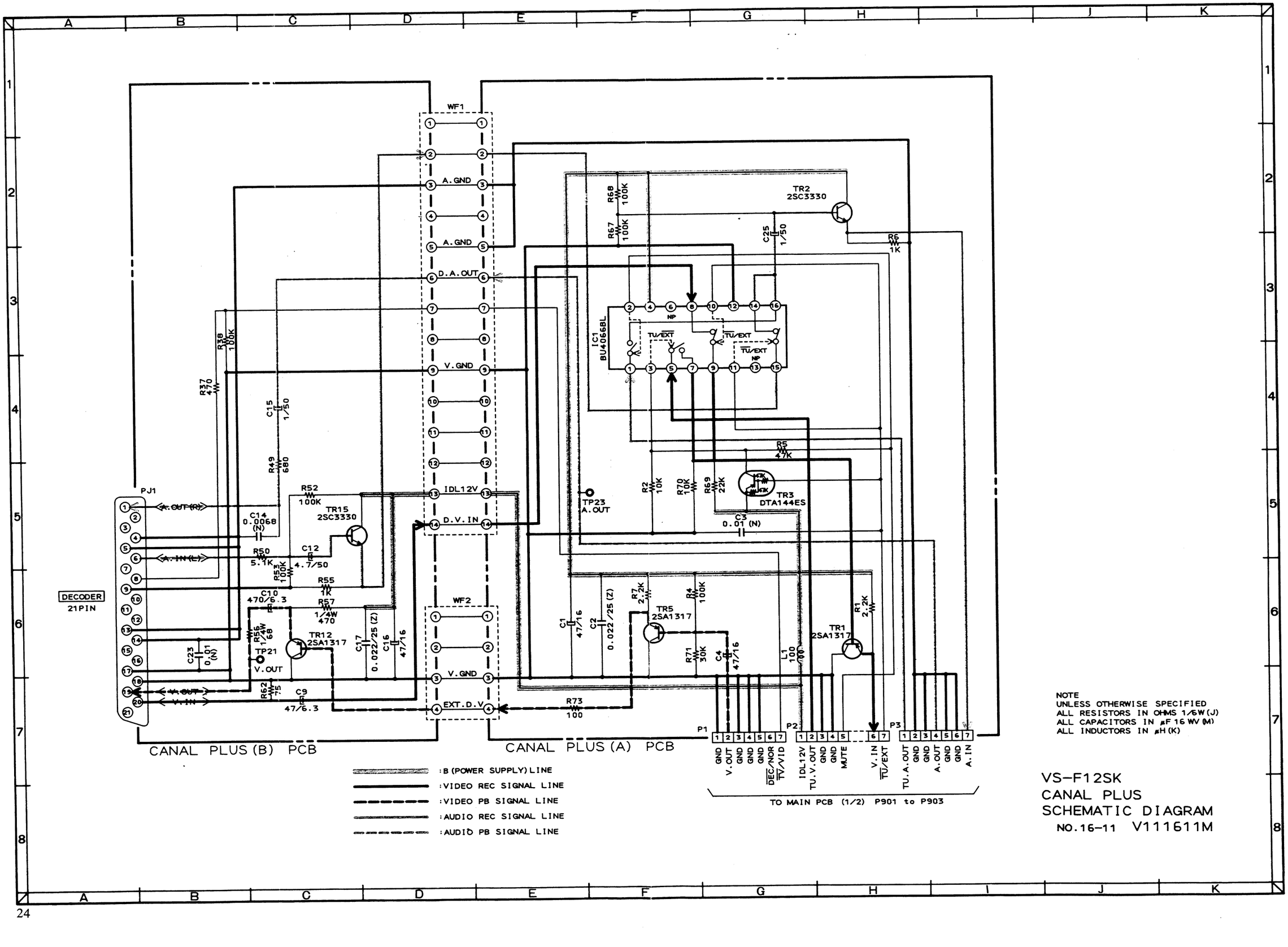


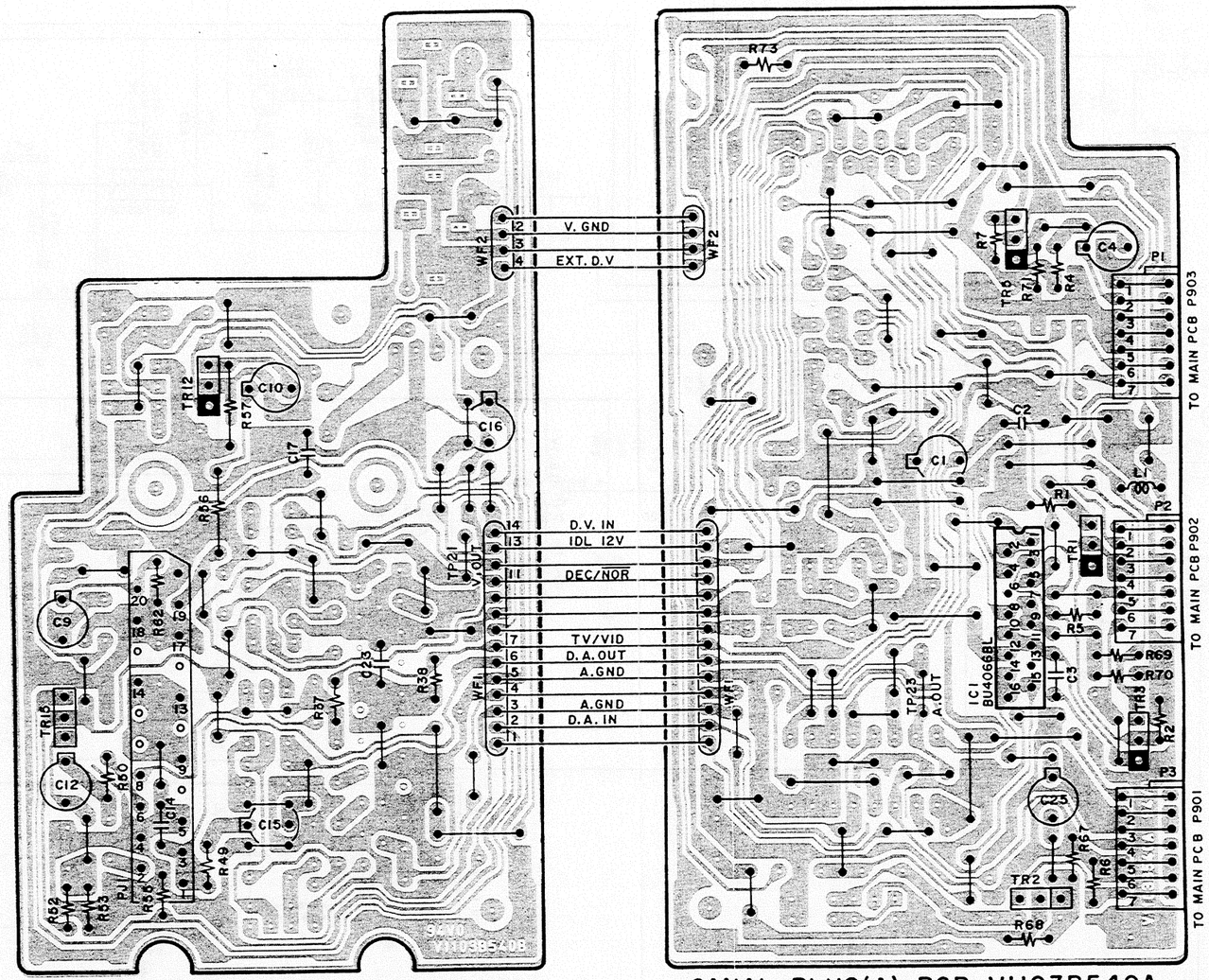
CANAL PLUS(B) PCB
VI103B504B

CANAL PLUS(A) PCB
VI103B540A

DTA114ES
DTC144ES
2SA1317
2SC3330

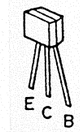



WF1
A. GND
A. GND
D. A. OUT
V. GND
IDL12V
D. V. IN
WF2
V. GND
EXT. D. V
PJ1
DECODER
21PIN
A. OUT (R)
A. IN (L)
V. OUT
V. IN
TR15
2SC3330
TR12
2SA1317
TR5
2SA1317
TR1
2SA1317
TR2
2SC3330
TR3
DTA144ES
IC1
BU4066BL
TP21
V. OUT
TP23
A. OUT
R68
R67
R38
R37
R49
R52
R50
R53
R55
R57
R56
R62
R73
R5
R2
R70
R69
R7
R4
R71
R1
R6
C25
C15
C14
C12
C10
C23
C17
C16
C1
C2
C4
C9
C3
L1
P1
P2
P3
GND
V. OUT
GND
GND
GND
DEC/NOR
TV/VID
IDL12V
TU. V. OUT
GND
GND
MUTE
V. IN
TU/EXT
TU. A. OUT
GND
GND
A. OUT
GND
GND
A. IN
TO MAIN PCB (1/2) P901 to P903
CANAL PLUS (B) PCB
CANAL PLUS (A) PCB
: B (POWER SUPPLY) LINE
: VIDEO REC SIGNAL LINE
: VIDEO PB SIGNAL LINE
: AUDIO REC SIGNAL LINE
: AUDIO PB SIGNAL LINE
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μF 16 WV (M)
ALL INDUCTORS IN μH (K)
VS-F12SK
CANAL PLUS
SCHEMATIC DIAGRAM
NO. 16-11 V111611M



CANAL PLUS(B) PCB V1103B540B

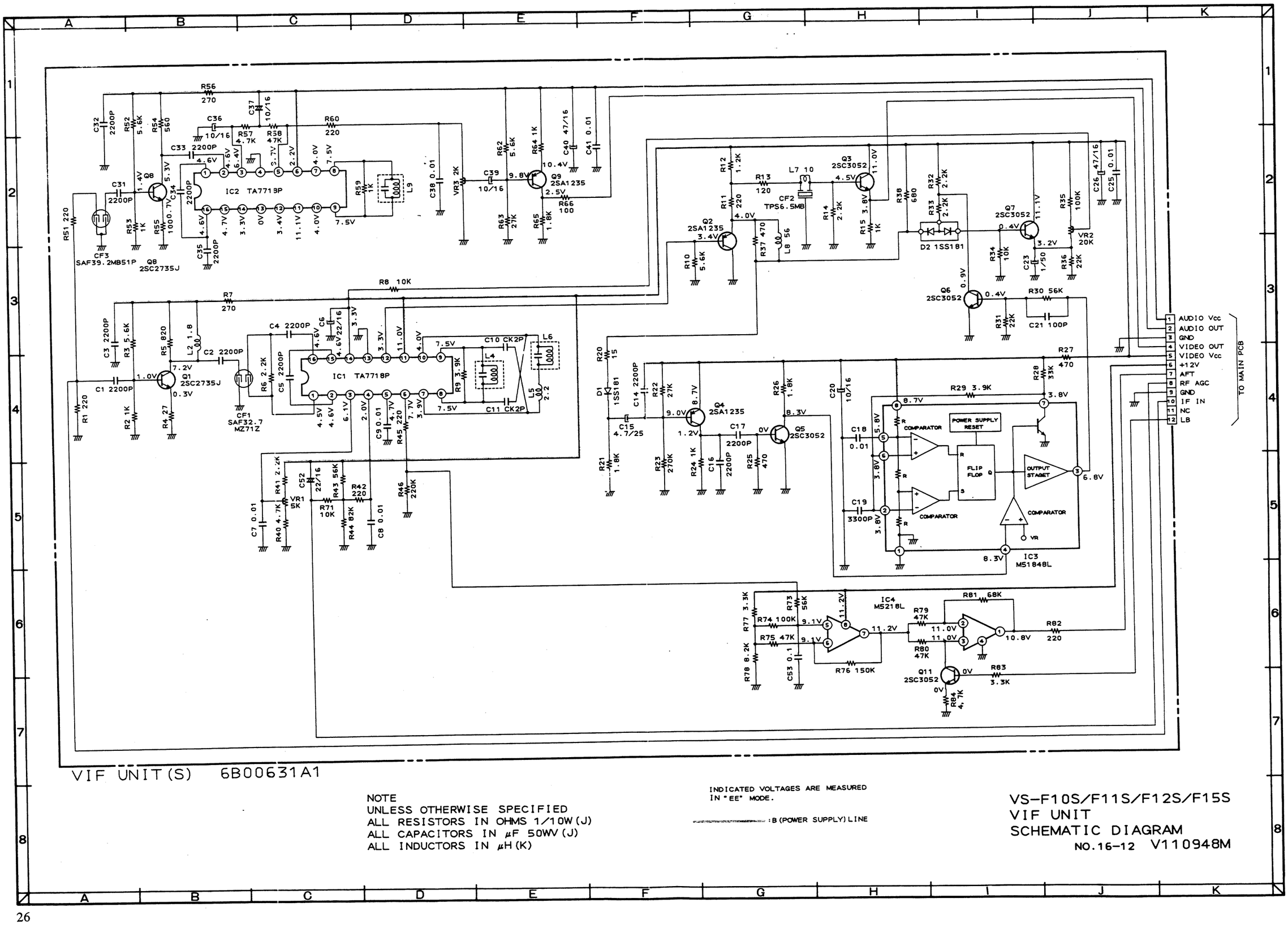
CANAL PLUS(A) PCB V1103B540A



DTA144ES
DTC144ES
2SA1317
2SC3330

= PNP TRANSISTOR

= NPN TRANSISTOR



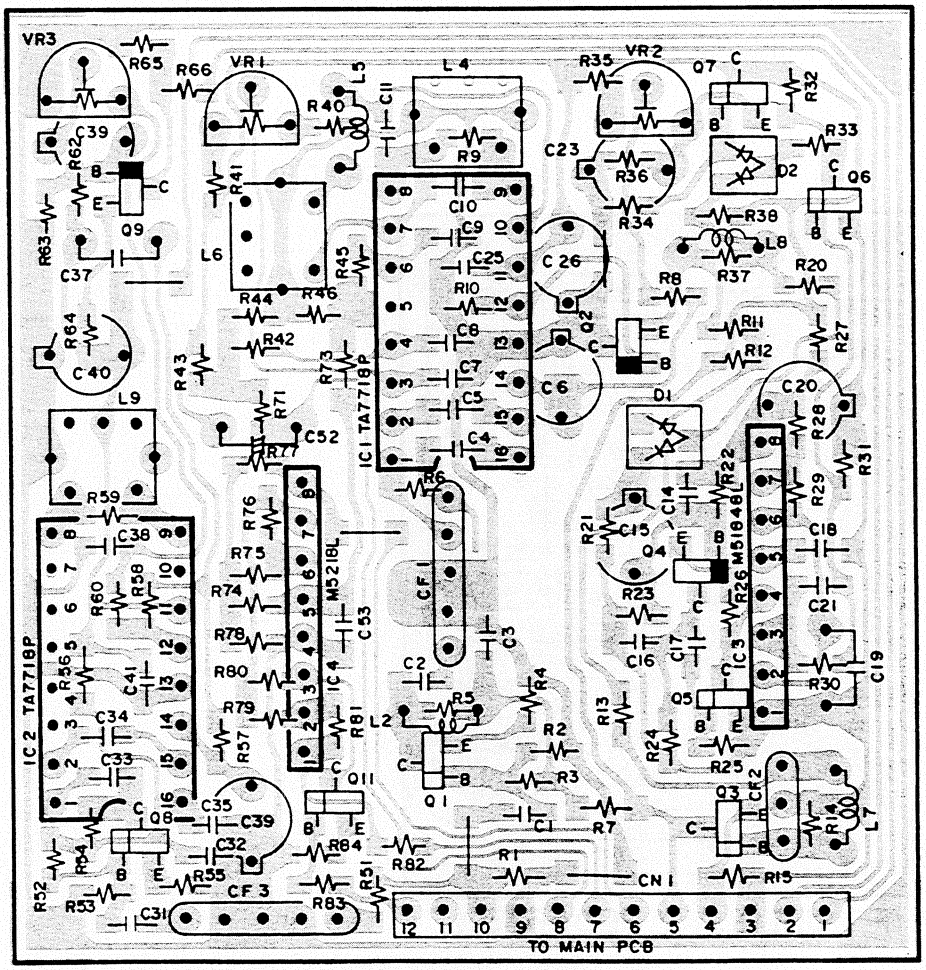
VIF UNIT(S) 6B00631A1

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/10W(J)
ALL CAPACITORS IN μF 50WV(J)
ALL INDUCTORS IN μH(K)

INDICATED VOLTAGES ARE MEASURED IN "EE" MODE.

: B (POWER SUPPLY) LINE

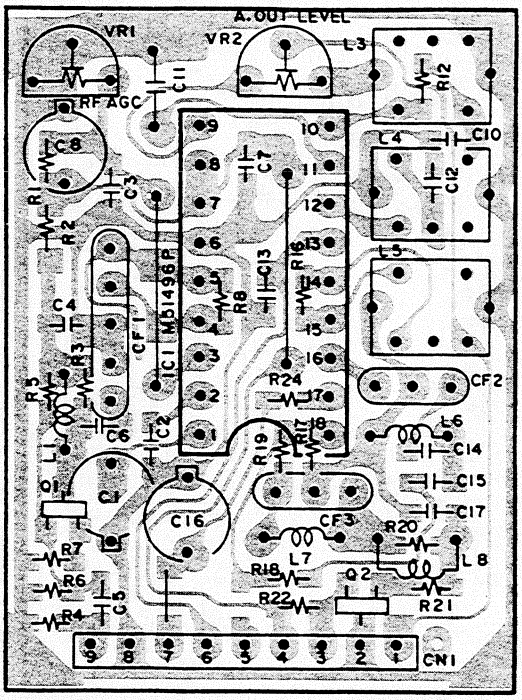
VS-F10S/F11S/F12S/F15S
VIF UNIT
SCHEMATIC DIAGRAM
NO.16-12 V110948M



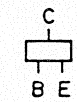
VIF UNIT (S) 6B00631A1

C
B E = NPN TRANSISTOR

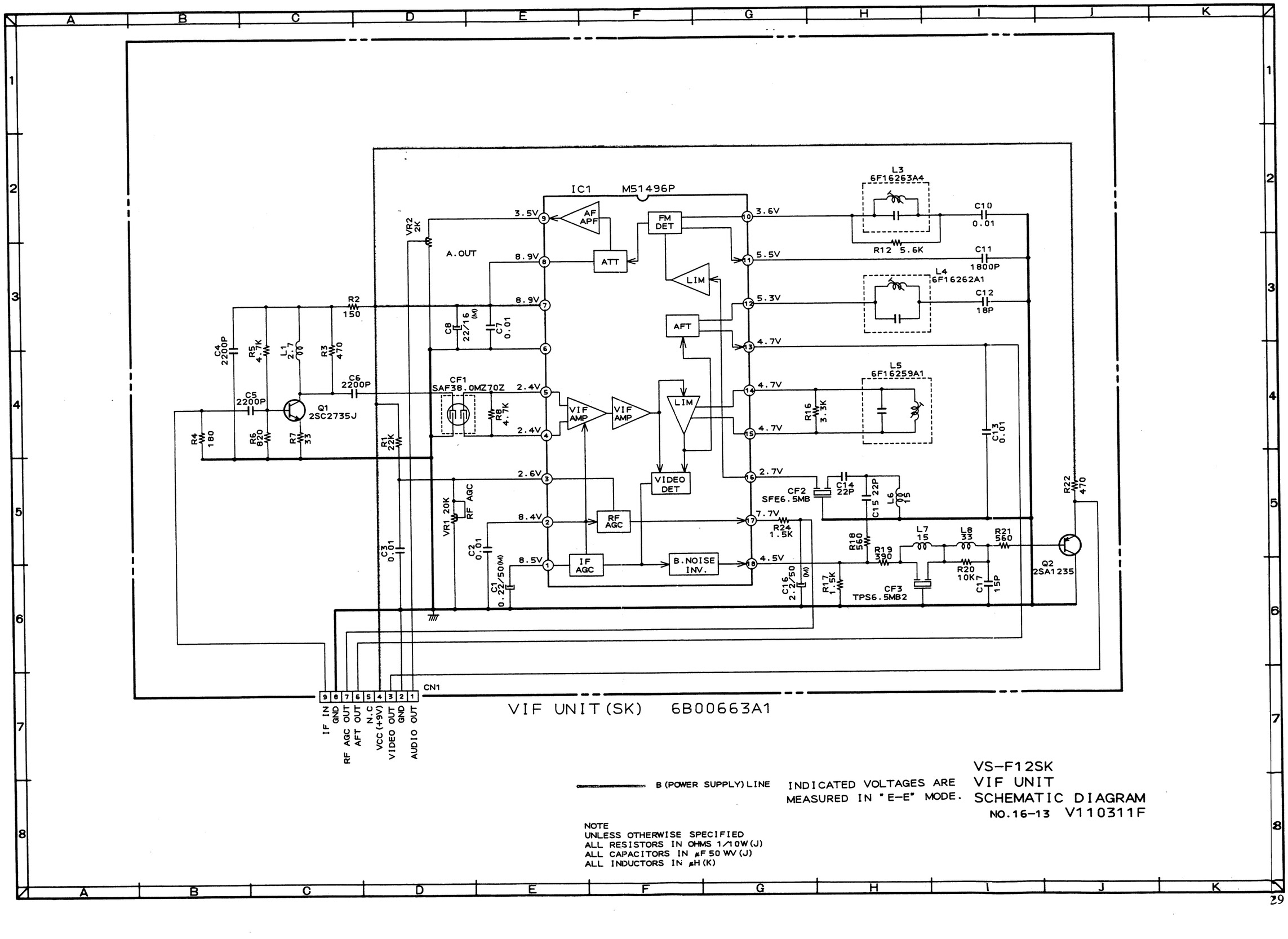
C
B E = PNP TRANSISTOR



VIF UNIT(SK) 6B00663A1



2SA1235
2SC2735J



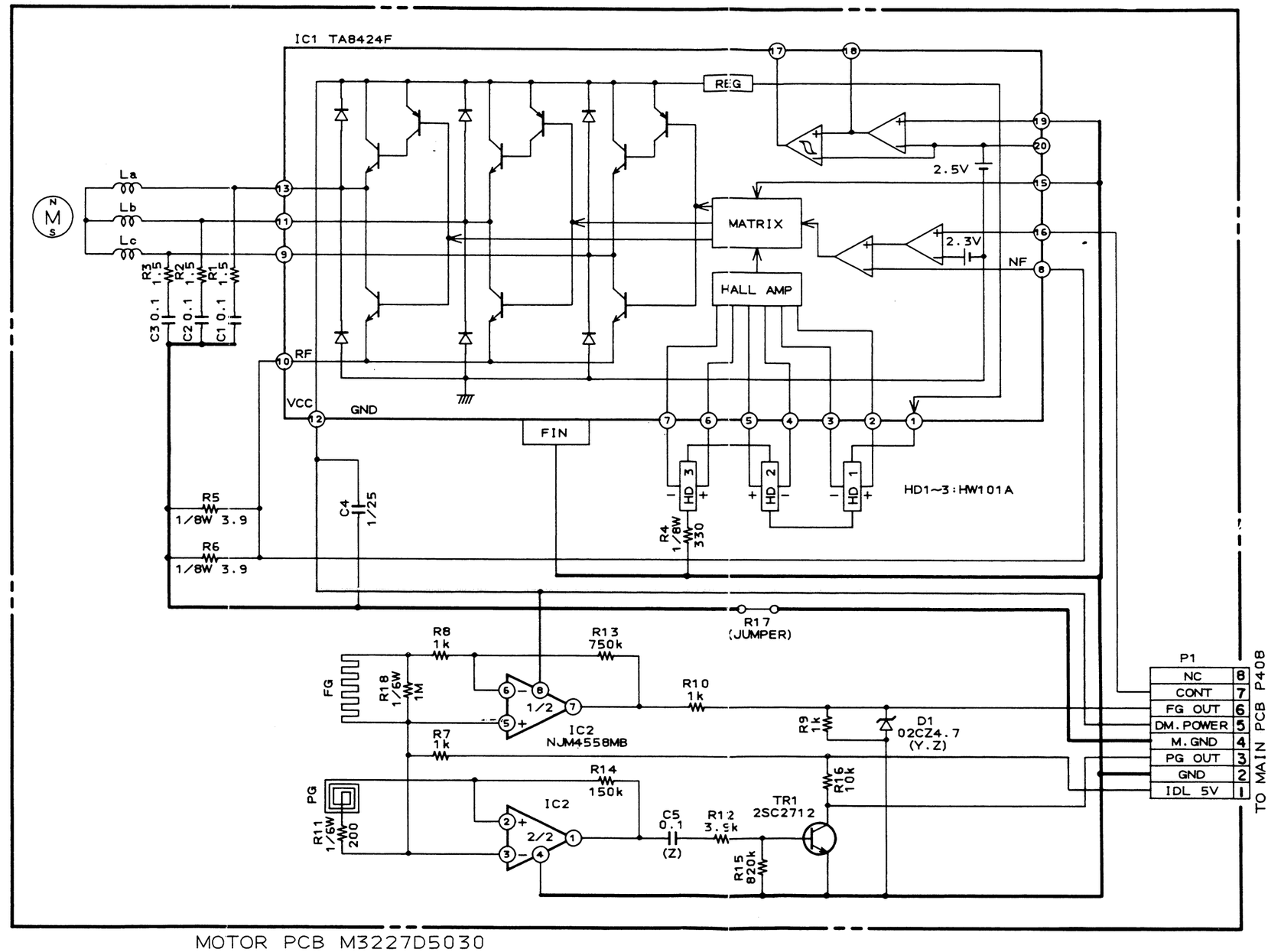
VIF UNIT(SK) 6B00663A1

B (POWER SUPPLY) LINE

INDICATED VOLTAGES ARE MEASURED IN "E-E" MODE.

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/10W(J)
ALL CAPACITORS IN μF 50 WV(J)
ALL INDUCTORS IN μH(K)

VS-F12SK
VIF UNIT
SCHEMATIC DIAGRAM
NO.16-13 V110311F

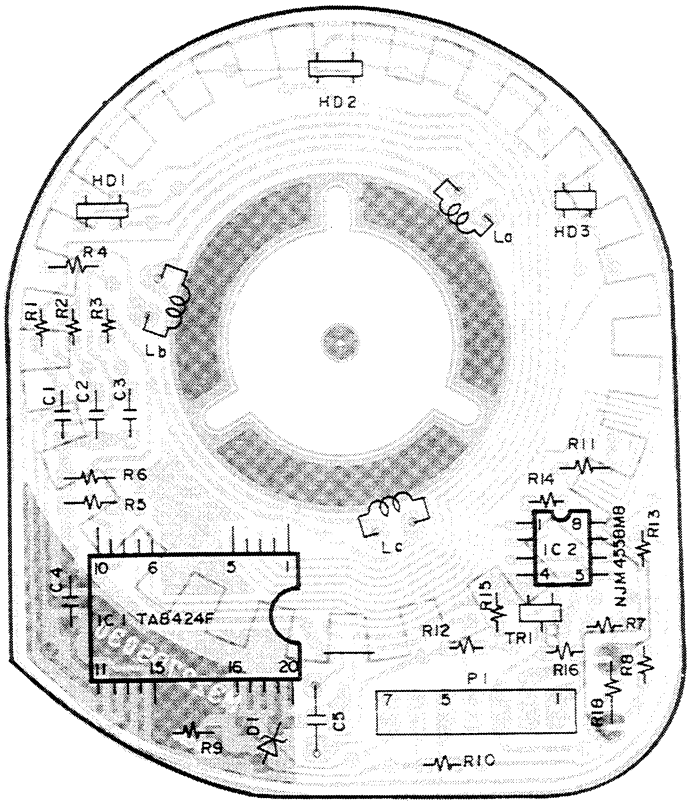


MOTOR PCB M3227D5030

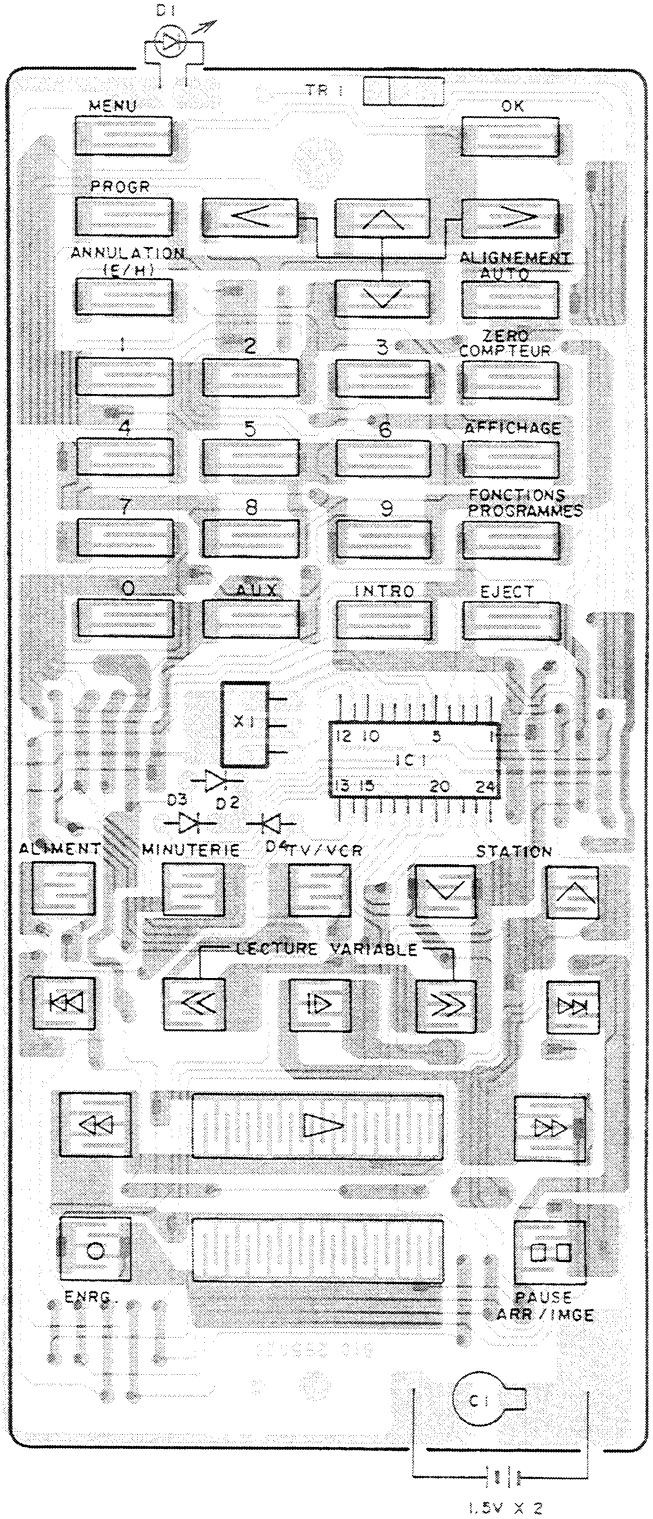
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/10W(J)
ALL CAPACITORS IN μF 50WV(K)

: B (POWER SUPPLY) LINE

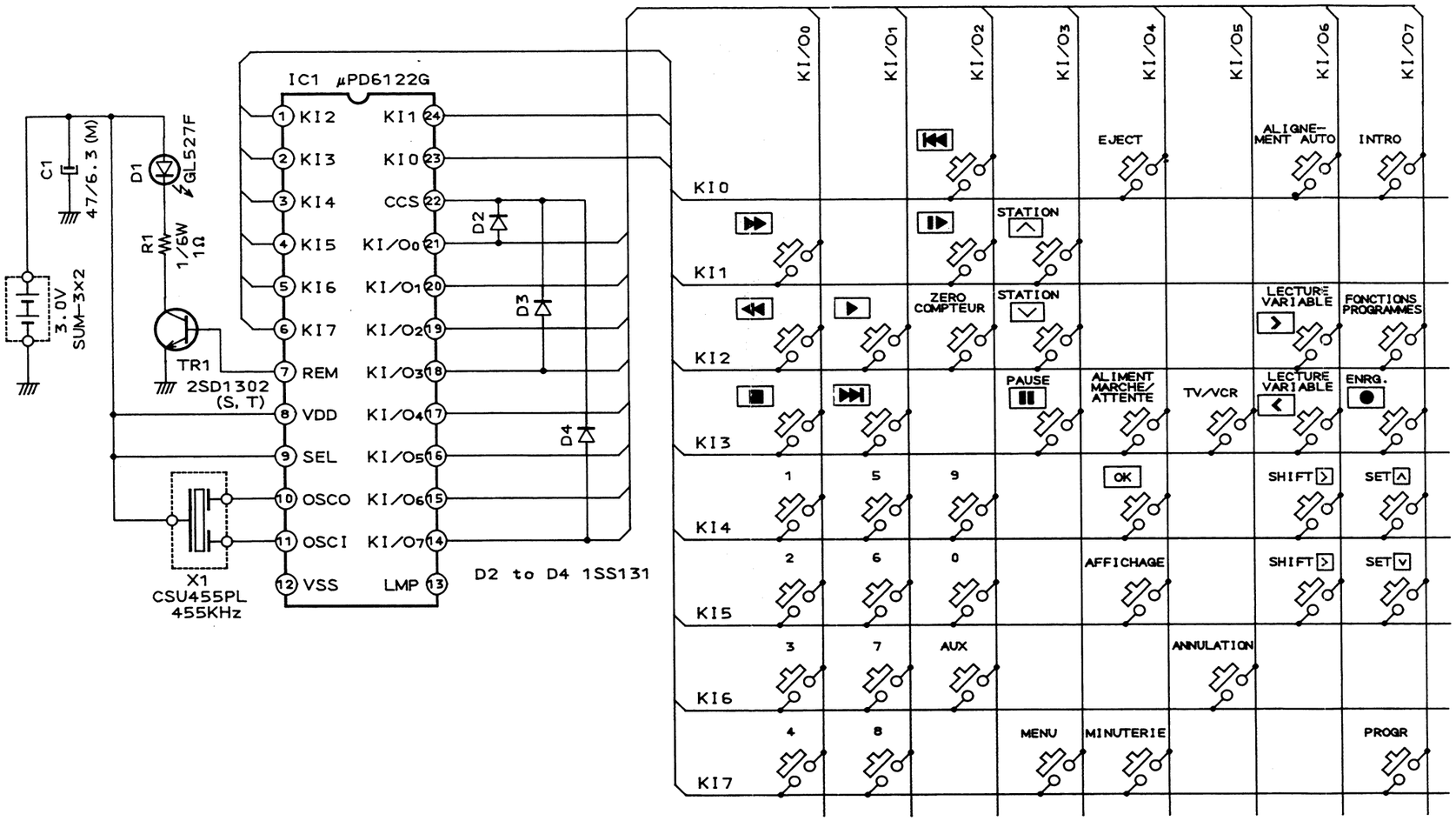
VS-F10S/F11S/F12S/F15S
VS-F12SK
MOTOR
SCHEMATIC DIAGRAM
NO.16-14 V110230M



DRUM MOTOR PCB (SM-270)
M3227D5030



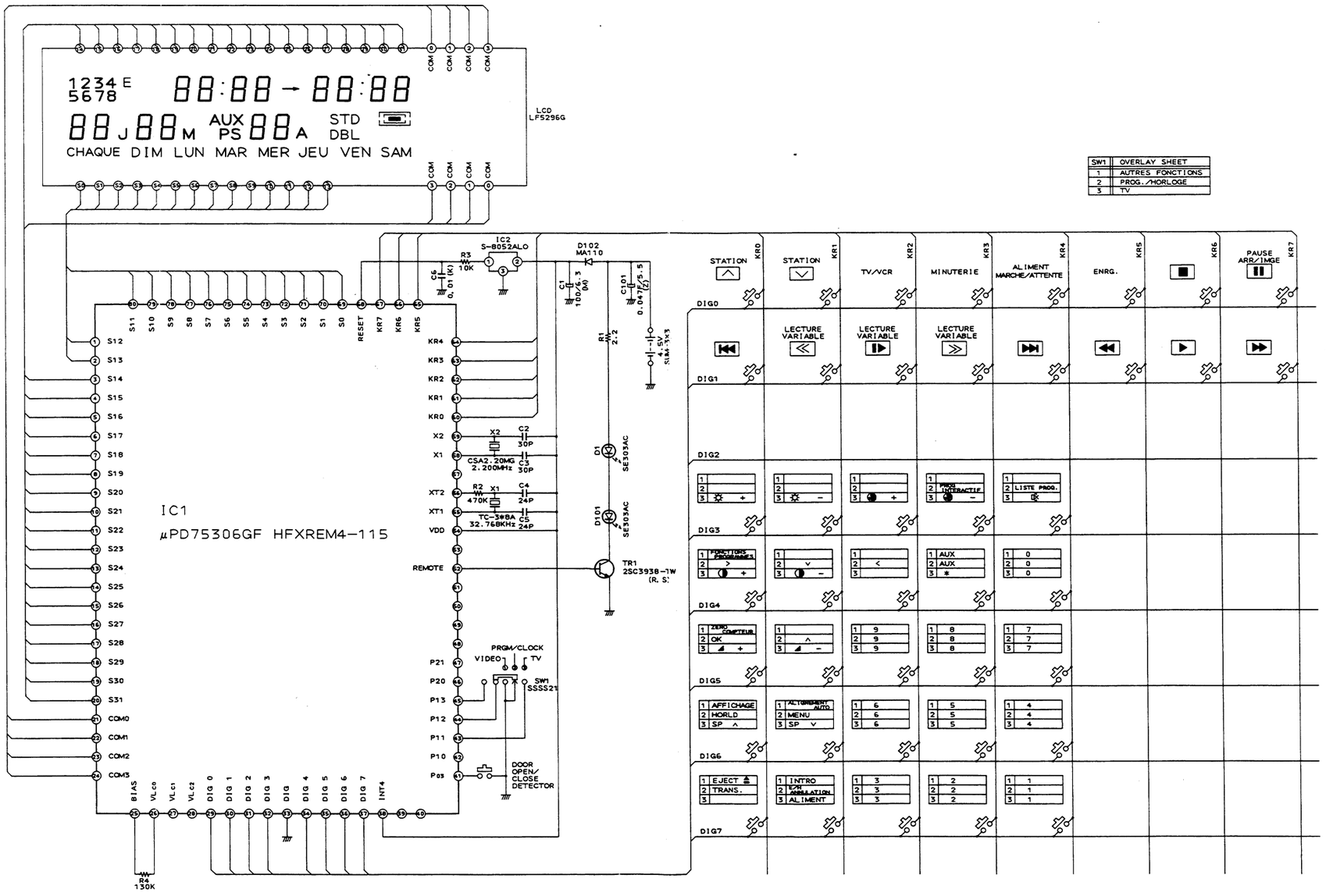
REMO-CON PCB BI012B5020J1



REMO-CON PCB B1012B5020

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/ W( )
ALL CAPACITORS IN µF WV( )

RC-V10A
REMOTE CONTROL UNIT
SCHEMATIC DIAGRAM
NO.16-15 B101202M

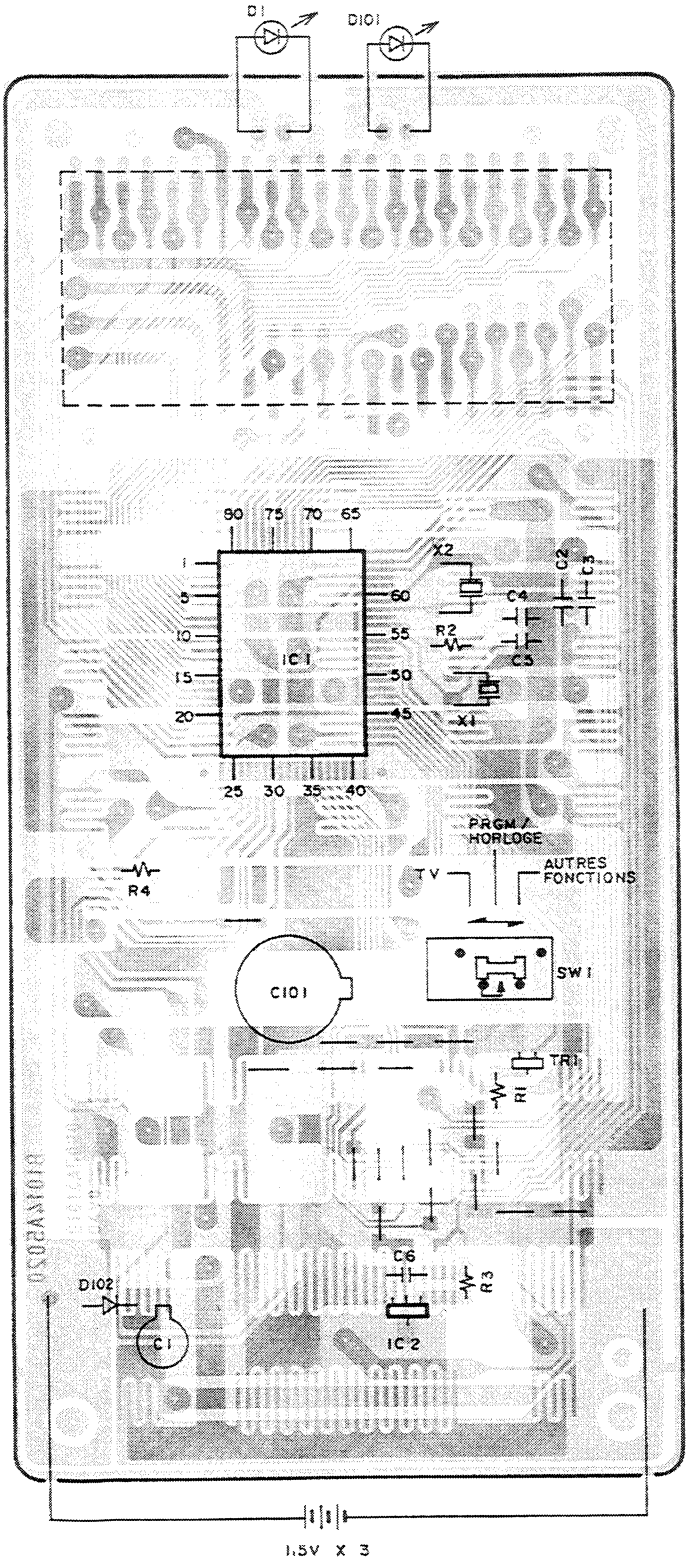


SW1	OVERLAY SHEET
1	AUTRES FONCTIONS
2	PROG./HORLOGE
3	TV

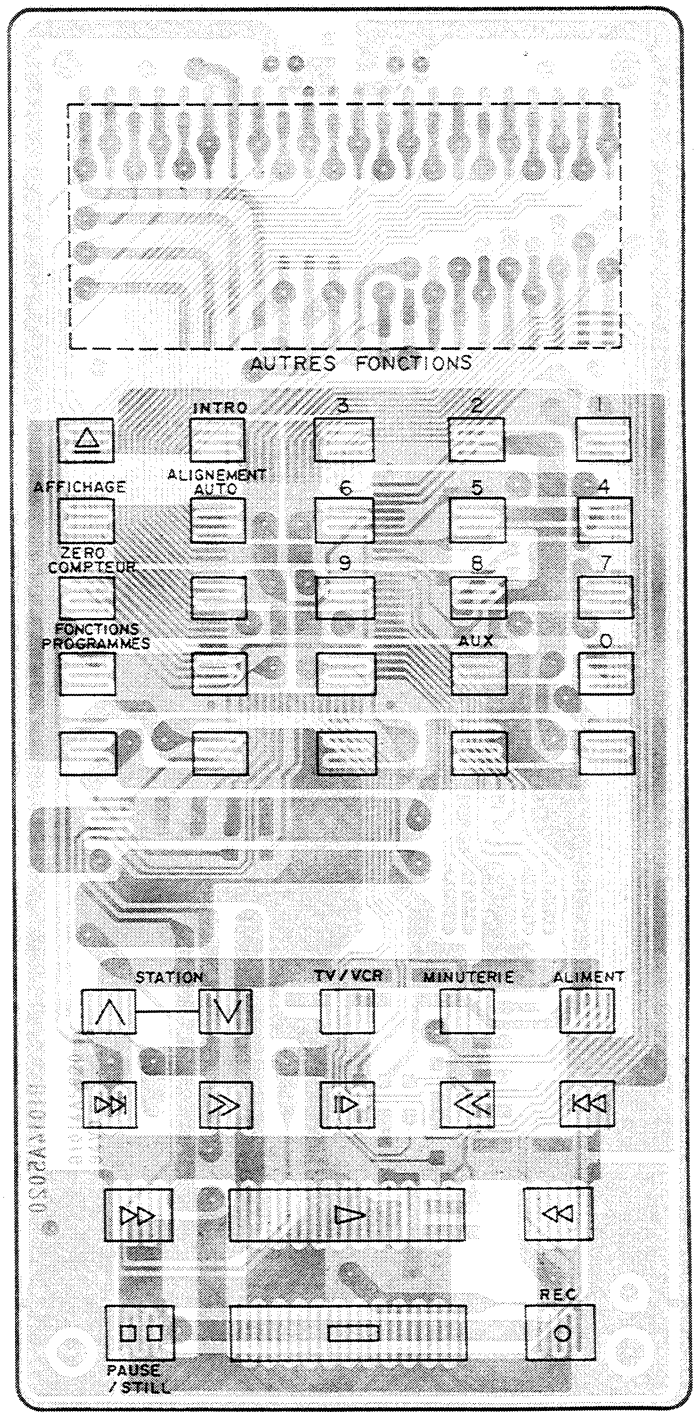
REMO-CON PCB B1014A5020

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W(J)
ALL CAPACITORS IN µF 50WV(J)

RC-V16A
REMOTE CONTROL UNIT
SCHEMATIC DIAGRAM
NO.16-16 B101402M

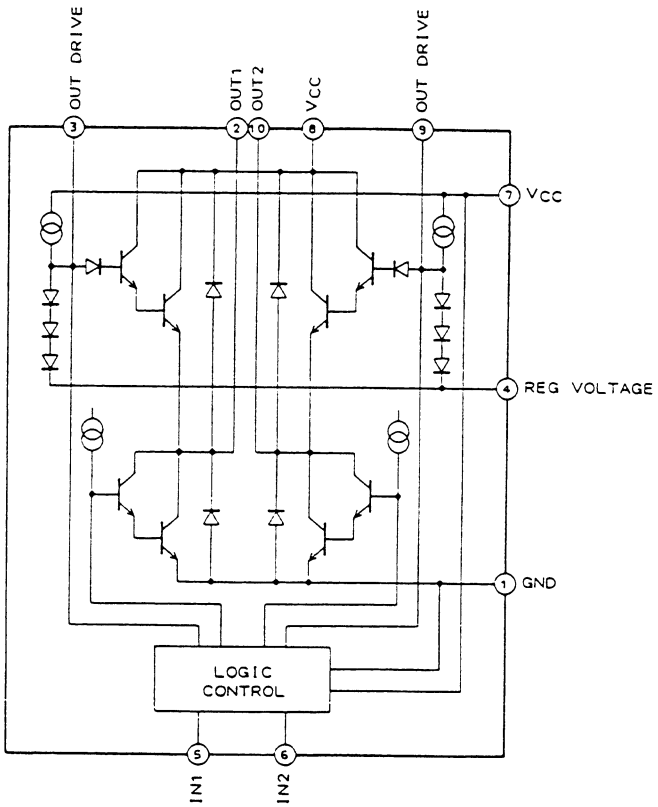


REMO-CON PCB B1014A5020J1
(PARTS VIEW)



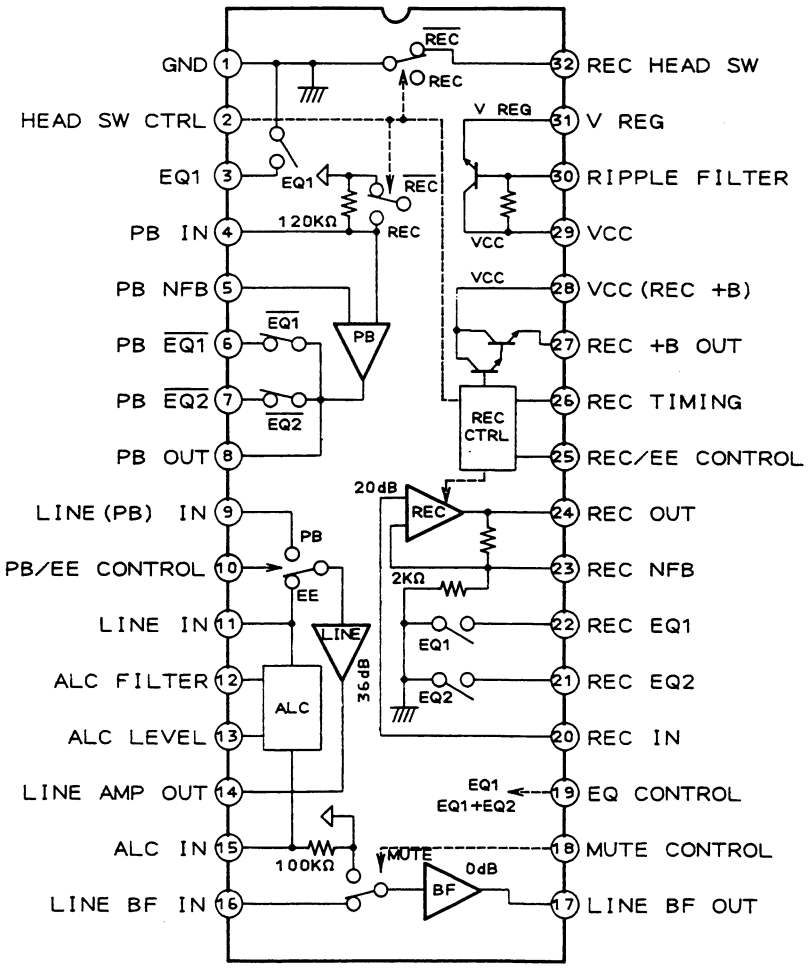
REMO-CON PCB B1014A5020J1
(SWITCH LOCATION)

BA6229 (BI-DIRECTIONAL MOTOR DRIVE)

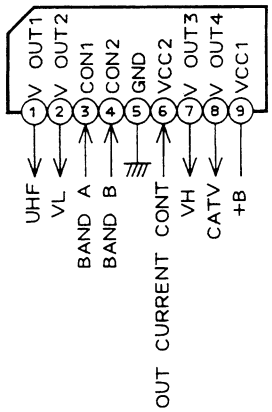


INPUT		OUTPUT		MODE
⑤	⑥	②	⑩	
H	H	L	L	BRAKE
L	H	L	H	CASSETTE & TAPE LOADING
H	L	H	L	CASSETTE & TAPE UNLOADING
L	L	OPEN	OPEN	STOP

BA7765AS (AUDIO SIGNAL REC/PB AMPLIFIER)



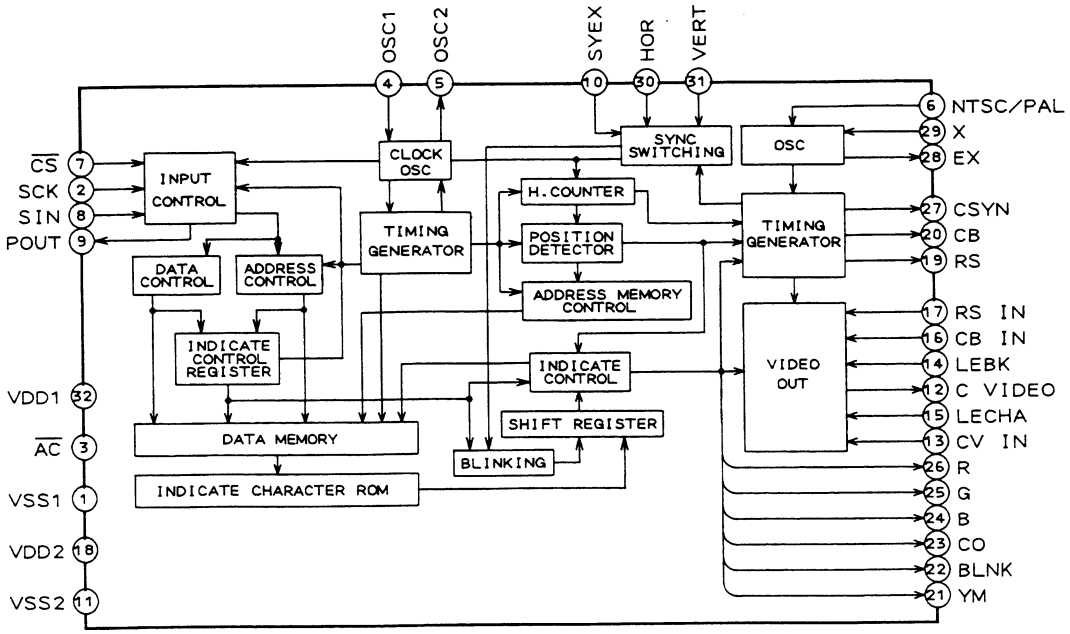
LA7910 (TUNER BAND SELECTOR (CURRENT AMP))



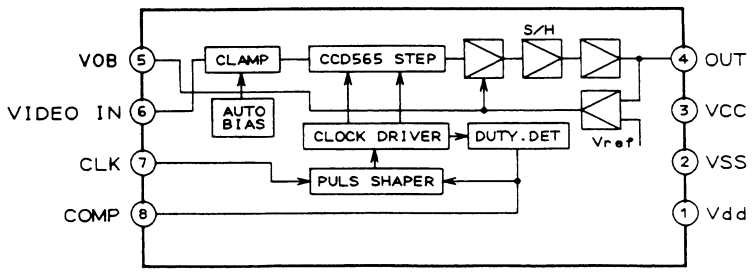
INPUT		OUTPUT			
CON1	CON2	V OUT1	V OUT2	V OUT3	V OUT4
L	L	H	Z	Z	Z
H	L	Z	H	Z	Z
L	H	Z	Z	H	Z
H	H	Z	Z	Z	H

Z:HIGH IMPEDANCE

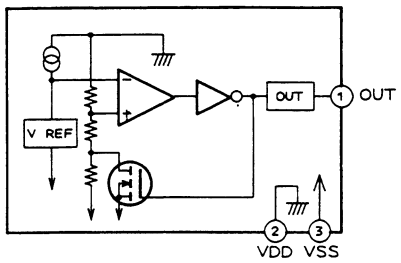
M50455-142SP (CHARACTER GENERATOR)



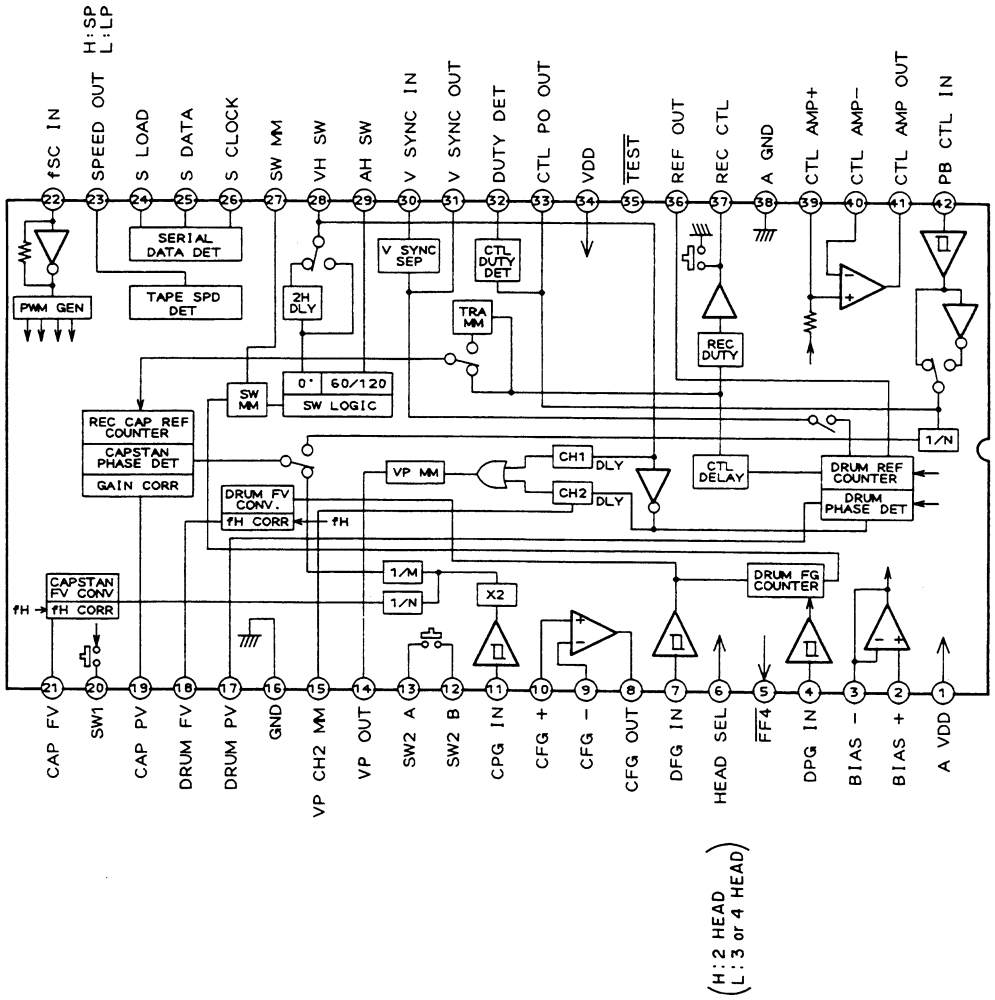
MSM6965-3RS (CCD 1H DELAY LINE)



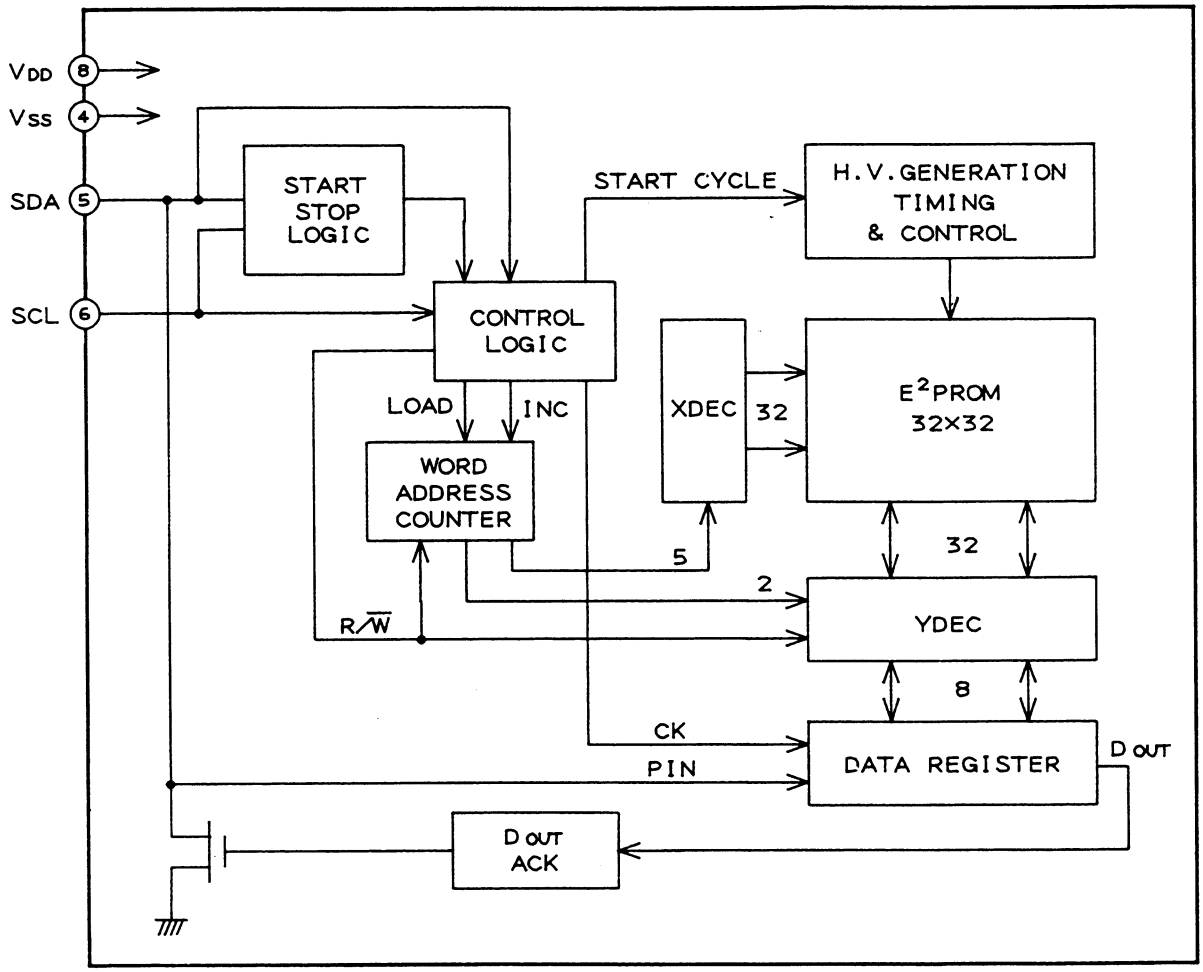
S-8053ALR (C-MOS VOLTAGE DETECTOR)



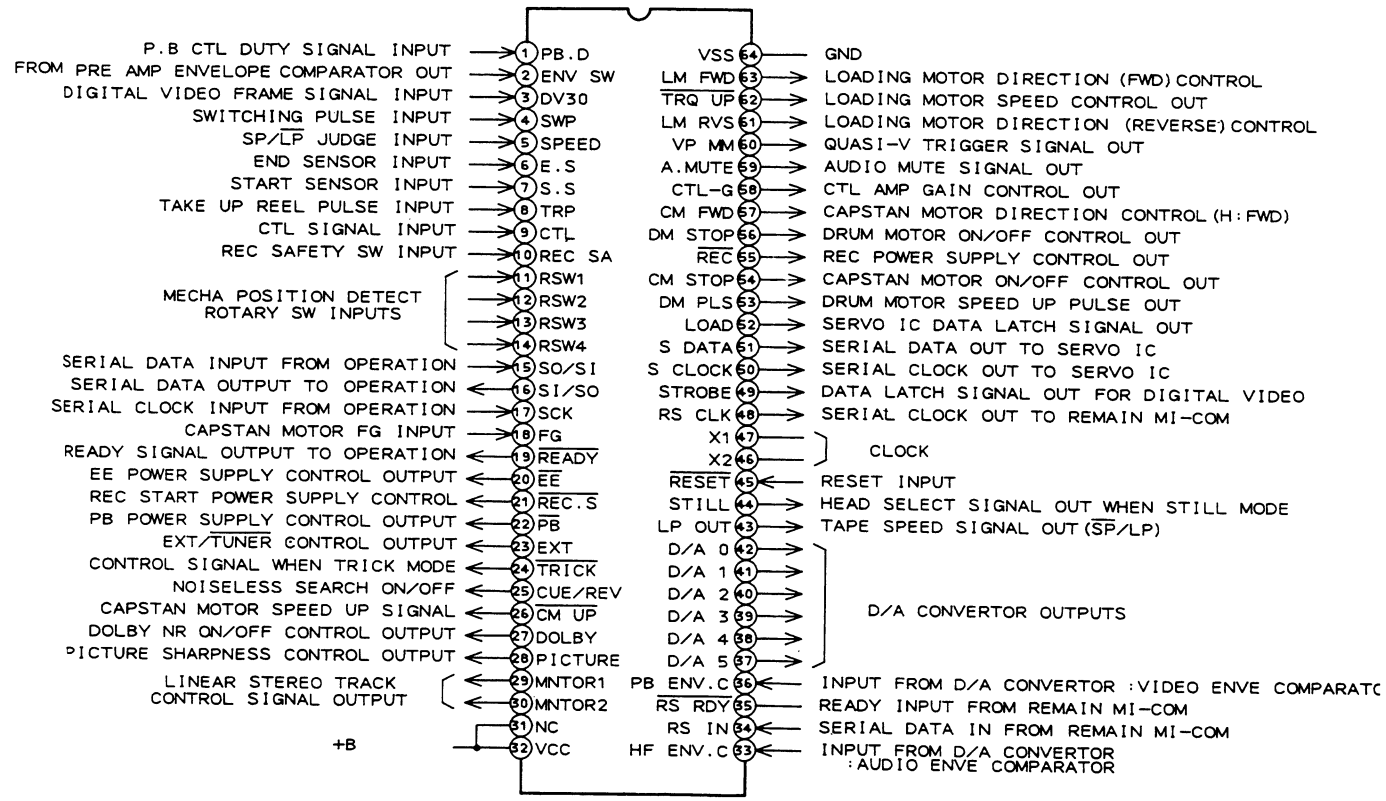
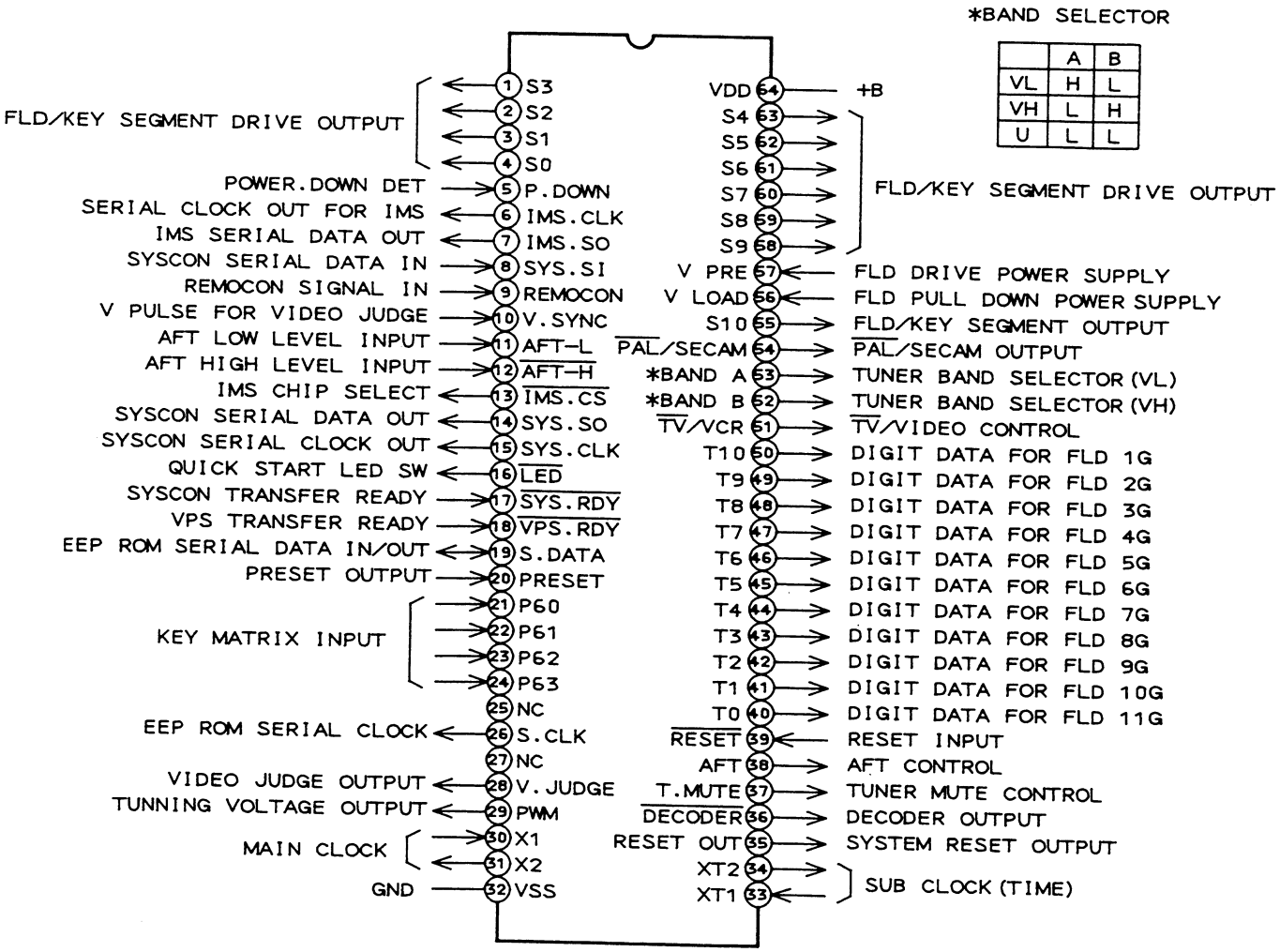
SX2777CS (DIGITAL SERVO)



X24CO1P (128 × 8 BIT SERIAL TYPE EEP ROM)



µPD75108CW-SXSYP4 (SYSTEM CONTROL MI-COM)



µPD75216CW-A20 (OPERATION MI-COM)